

AUG 23 1926

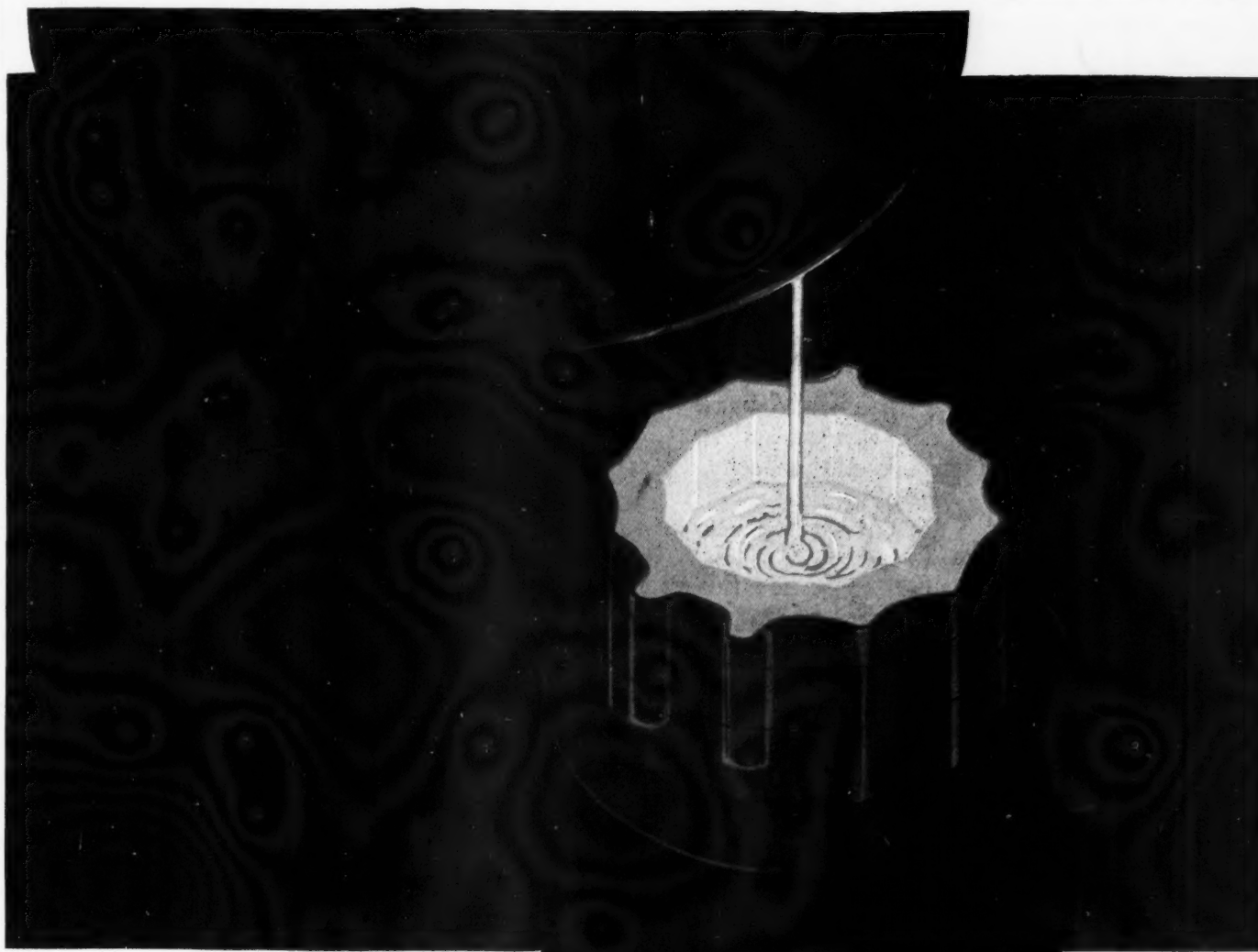
News of the Industry Begins on Page 308

# AUTOMOTIVE INDUSTRIES

Vol. 55  
Number 8

PUBLISHED WEEKLY AT CHESTNUT AND 56TH STREETS  
PHILADELPHIA, AUGUST 19, 1926

35c a copy  
\$3.00 a year



*Timken is the Largest Producer of Electric Furnace Steel*

*—Pouring a Steel Ingot*

Timken Taper and Timken *POSITIVELY ALIGNED* rolls are the accepted evidence of design which defeats the wear of friction, thrust, shock, torque and speed. Q Just so, Timken-made electric furnace steel is the sign that the best possible material is being used right where the motion comes. Q Universally identified with such coveted advantages of design and material, Timken Tapered Roller Bearings are standard in 91% of all makes of cars, trucks and buses in America. THE TIMKEN ROLLER BEARING COMPANY, CANTON, OHIO

## TIMKEN *Tapered Roller* BEARINGS



## Originators—*not* Imitators!

*Ternstedt is a trail blazer—not a trailer*

Every important body hardware advancement of recent years has originated at Ternstedt.

Those hardware appointments which have contributed so materially to the body beauty, convenience, comfort and utility of the world's leading motor cars have been perfected by Ternstedt experts.

Ternstedt has the *men* and the *means* to set the pace of progress—and to keep on doing it.

This recognized leadership is the reason why Ternstedt products are so consistently imitated.

# TERNSTEDT

*World's Largest Manufacturers of Automobile Body Hardware*

DETROIT U. S. A.





# AUTOMOTIVE INDUSTRIES

VOLUME 55

Philadelphia, Thursday, August 19, 1926

NUMBER 8

## Magic Wand of 1926 Prosperity Hasn't Touched *All* Companies

*Earnings of industry as whole have been unparalleled and most producers are getting slice of the business melon but some have been unable to equal 1925 record.*

By Norman G. Shidle

THE automotive industry has just passed through what has generally been considered a period of almost unparalleled prosperity. Production records have been shattered many times during the last six or seven months and the total for the first half of this year exceeding that of the first half of 1925 by about 12 per cent—and 1925 set a new high mark for car and truck output.

As usual, prosperity has not been evenly distributed throughout the field. This was to be expected. But the striking point developed by study of detailed and individual figures of net profits, production and retail sales is that some companies—despite the unusually favorable general conditions—have failed thus far to make as much money as they did last year. In certain cases, production, sales and profits all are running behind 1925, while in a few instances it has been impossible to increase profits even though factory output and retail sales both have been pushed above the 1925 marks.

A very large proportion of the car companies, of course, have forged ahead to a material extent this year as compared with last.

Production for the first six months for the indus-

Q A very large proportion of the automobile companies have forged ahead to a material extent this year as compared with last.

Q Production for the first six months for the industry as a whole was 12 per cent ahead of last year.

Q Retail sales for the first five months were about 17 per cent ahead of 1925.

Q Net profits for the first six months for a representative group of passenger car concerns were 49.2 per cent over last year.

Q Several companies made nearly as much during the first six months of 1926 as they made during the whole of 1925.

Q But the prosperity has not been evenly distributed throughout the field. Some companies—several very large ones—have not been making as much as they made last year. The probable reasons for these wide fluctuations of earning power are discussed in the accompanying article.

try as a whole, as noted, was 12 per cent ahead of last year.

Retail sales for the first five months were about 17 per cent ahead of 1925.

Net profits for the first six months for a representative group of passenger car concerns were 49.2 per cent over last year.

The uneven character of the distribution of prosperity this year cannot be passed off with the time-worn statement that gradually the industry is getting into the hands of a few large concerns and the stronger companies are growing stronger and the weaker ones weaker. The facts do not bear out that assumption, despite the recognized trend toward consolidations and mergers in various parts of the industry.

Many of the weaker companies have profited by the general prosperity this year as they nearly always have in past periods of upward economic trend. The organizations which thus far have failed to produce net profits commensurate with their 1925 earnings are, in several instances at least, large, important factors in the industry.

In analyzing the marketing trends of the industry it is important that the detailed considerations of individual performances be carefully observed. Pre-

dictions and prognostications made on the basis of general and casual observances are likely to go awry because the huge gains made by a number of companies naturally get a good deal more general publicity and emphasis than the relative lack of progress characteristic of a few others.

The big advances which have been made by several important organizations are significant, as a matter of fact, when compared with the averages for the industry as a whole. Since a few companies increased their profits by several hundred per cent as opposed to an average of less than 50, it becomes apparent that less favorable records must have been compiled by some other units in the industry.

#### General Motors' Great Showing

The vast size of General Motors Corp. and the spectacular rise of its securities on the stock market has so fixed attention on its latest financial statement as to make it thoroughly familiar at the present time to even the most casual observer. With earnings of \$93,285,674 for the first half of 1926 it eclipsed its 1925 first half year earnings by nearly 85 per cent. For the same period the total sales of cars to dealers exceeded those of last year by about 63 per cent, while sales at retail showed a gain of nearly 57 per cent.

These large percentage gains are particularly impressive in view of the size of the figures involved, last year's totals already having reached impressive

the industry as a whole of its rather strict adherence to conservative, stabilizing merchandising policies throughout the last few years.

Other companies, both large and small, have shown gains over 1925 far above the average, the percentage increases for some of the smaller production companies being extremely large, as might be expected in view of the relatively small figures recorded last year.

The impossibility of gaging automotive progress accurately by study of production data alone becomes more apparent every year. That increased production does not always go hand in hand with increased profits has been evident to students of the industry for several years and the truth of this axiom is again illustrated by the 1926 records. At least three important companies made good increases in production the first half of this year as compared with last, but were unable to bring their net profit lines up to as high a level as during the same period in 1925.

It is interesting to note also the close interrelationship between manufacturer and dealer profits. An investigation among representative dealers which we made a few weeks ago indicated that while 60 per cent of all dealers seem to be making more money this year than last, over 60 per cent of the retailers for four large producers have been making less this year than last. Strangely enough, there is a fairly high degree of synchronization between the list of factories which haven't been making as much money as last year and the groups of dealers which have not been doing as well as the average.

While detailed data are not available to prove all phases of the statement, those figures which have been collected indicate strongly that there is much less truth in the general criticism that manufacturers are making money at the expense of dealers than is generally thought. Those dealer organizations which, for the most part, have found it difficult to increase net profits this year seem to be associated for the most part with factories whose balance sheets show them to be having similar difficulties in bringing this year's profits up to those of 1925.

#### Long-Swing Policies

Thus, additional evidence is piled up to emphasize the practical necessity for factory policies which are built for the long swing, which seek permanent growth rather than temporary spurts, and which are stable year after year. "Throughout the competitive merchandising period which the industry is entering with the announcement of new models," said an article in these columns a few weeks ago, "there seems sure to be an increase in the value of factory marketing policies which are permanent but not rigid, sound but not arbitrary and flexible but not vacillating." The combined results of the first six months' profit, production and sales figures indicate that this statement properly may be emphasized further. Whether insistence by the factory on a certain merchandising policy consists merely of stability or whether it really is an evidence of rigidity must always remain a matter which cannot be determined accurately in any mathematical sense. But recognition of the fact that it may be rigidity, may cause



*Factory policies which are built for the long swing bring the best results*

heights. It is fair to say that the unusual prosperity of this big automotive unit today is the result of several years' careful, sound and intelligent operation on the basis of marketing policies designed for the long haul. Because of the dominating position occupied by General Motors through its great size, it is probably difficult to overestimate the importance to



second thought and thus tend to insure the final application only of such policies as have been considered fully from a long-swing as well as from a short-swing standpoint.

Fundamental factory policies as regards dealer relations, production schedules, market analysis, selections and training of merchandising personnel and general study of economic trends are bound to have more influence in determining success or failure in the next decade than they have in the past. Personality, enthusiasm, individual merchandising stars and similar characteristics—still important in the automotive sales scheme—probably will not be the dominating factors which they once were.

Just the other day we had lunch with a man who was one of the first, if not the first, advertising man an automobile company ever had. An hour or so had sped by unnoticed while he recounted many interesting and unique experiences culled from his memories of the early days in the business. As we left the table, this veteran of automotive merchandising said:

#### Different Situation Now

"Things today are very different from what they used to be. Not so very many years ago, I was able to keep in pretty close touch with everything that was going and with everybody who amounted to anything in the industry. For a good many years every automotive happening of any importance was a part of my personal, individual experience.

"Today that's impossible. I can come into contact personally only with a few of the total number of important men engaged in the industry; I can know a great many dealers personally and still be acquainted with only a small percentage of the really worth while retailers in the country; I can be in actual contact with only an infinitesimal proportion of the events and happenings vital to the industry's future which are taking place every day.

"It's all so big and it all moves so fast compared with what it once did."

The expression of this pioneer in the industry visualizes in a specific manner the changing requirements in factory organization, sales planning and general marketing activity. Something of the problem involved is indicated in the following paragraphs drawn from comments printed recently in a bulletin of the *United Business Service* as regards the increasing demand for high grade men.

"Perhaps the most notable feature of American business during the present year," the bulletin runs, "is the large number of mergers that are taking place. A new opportunity is rapidly opening out for men who have the ability and capacity to undertake and carry through large corporate undertakings. The success of an executive in a small or medium sized business may be based chiefly on his personality—his personal touch with salesmen and customers. In handling the affairs of a big concern, time and space limit his personal contacts and therefore the effect of his personality in creating confidence and inspiration in those with whom he deals.

"In the larger sphere of management what is needed is a chief-of-general-staff, a strategist, able to conceive a broad plan, make subordinates understand

it, win their confidence in it and then make a wise selection of men to handle details. He must know how to leave the largest measure of responsibility with these subordinates, while yet keeping a balanced control of the main lines."

The automotive industry as a whole once was small enough to permit successful application of methods similar to those used in a small organization. Today it is a huge, complex business organism, the understanding of which requires the utilization of methods and policies somewhat different than those which once proved highly profitable. Those organizations which gradually have adapted their methods and policies to the changing circumstances surrounding their marketing operations are reaping the benefits which accrue from their foresight.

### New Fuel for Dirigibles

OFFICIALS of the Goodyear-Zeppelin corporation, subsidiary of the Goodyear Tire & Rubber Co. are following closely experiments being made by German engineers with a new gas which they plan to substitute for benzine as a fuel in the super-Zeppelin they plan to construct.

The new fuel is described in advices received here as carbureted hydrogen gas, held superior to other liquid fuels because of the increased economy and efficiency and virtual elimination of the danger of explosion.

Another advantage is that its weight is the same as atmosphere, and therefore no loss of weight or balance of the airship results as the gas is consumed. Heretofore it has been necessary to equip lighter-than-air craft with compensating devices, such as the water recovery apparatus on the Shenandoah and Los Angeles, to maintain the ship's weight. In the absence of such devices it is necessary to valve out the lifting gas of the dirigible, a costly process.

One form of the new gas has been found by Zeppelin officials to function satisfactorily in the Maybach motors, with which the super-Zeppelin is to be equipped, only alteration of the carburetor being necessary to adjust the motors to the fuel.

The gas has been produced after three years of experiment by a German physicist, Dr. Lemperts. If successful, it is expected to change materially the construction of lighter-than-air craft, because the reduced weight of the fuel will produce a new condition of weight bearing. The gas is 700 times lighter than benzine and one cubic meter of it develops 25 to 30 per cent more efficiency than a kilogram of benzine.

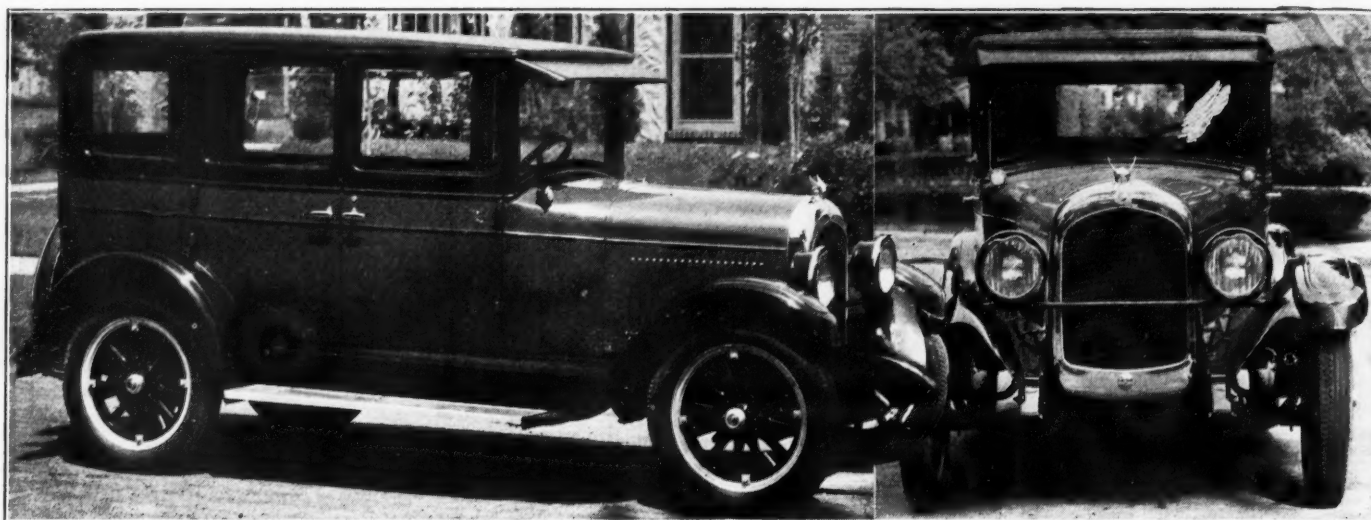
Zeppelin experts declare the new gas will reduce the strain on the frame work of a ship aloft, and should increase the cruising radius. The fuel is impractical for heavier-than-air craft, because planes could not carry the necessary amount of gas.

The proposed super-Zeppelin, to be known as the LZ-127, will be similar in size to the Los Angeles, but slimmer. It will carry five Maybach motors of 420 hp. each, and will be completed late in 1927.

Application for a patent on the gas has been filed in this country. Goodyear-Zeppelin officials are familiar with the process for producing the gas and have the right to use it if they so desire.

THERE is said to be a considerable demand for motor trucks operating on suction gas in the Belgian Congo, where gasoline sells at four times the price as in Brussels. Three Belgian manufacturers of motor trucks furnish them with gas producers in the Congo.

# Chrysler Introduces the Model "50"



Front and side views of new Chrysler "50" sedan which sells for \$830. Body is all-steel construction

New "50" has  $3\frac{5}{8}$  by  $4\frac{1}{8}$  in. engine, compression ratio of 4.0 to 1, maximum speed of 3000 r.p.m. and 106 in. wheelbase. Prices are \$750 to \$830.

*By Leslie S. Gillette*

**T**HE Chrysler Sales Corp. introduces this week a new four-cylinder model designated as the "50." With the announcement of this car, production of the "58" will be discontinued.

The salient feature of the "50" model is the adoption of all-steel fabrication for the three closed bodies forming the line. These bodies, of Budd manufacture, comprise a coupe, coach and sedan listing at \$750, \$780 and \$830 respectively, and they mark the first of the Chrysler cars to be equipped with all-steel bodies. Two-wheel mechanical brakes are standard equipment.

The "50," except for being smaller, bears the closest resemblance in appearance to the "58" model which it replaces. All units making up the chassis have been designed specially to conform with conditions found in the lighter four-cylinder field. The main features are a  $3\frac{5}{8}$  by  $4\frac{1}{8}$  in. engine of 21.03 rated hp., single plate clutch with conventional transmission in unit with engine, rubberized universal joints, semi-floating rear axle providing a 4.7 to 1 ratio, 29 by 4.75 in. balloon tires, an overall length of 153 in., a wheelbase of 106 in. and a standard tread.

## 50 Miles an Hour

The car is capable of slightly better than 50 m. p. h. with full load of passengers. Due to reductions in the unsprung weight permissible with the lighter type of car, the "50" provides very comfortable riding over country roads. The rate of acceleration compares very favorably with that of the former "58" model.

Certain desirable characteristics of the "58" powerplant are retained in the "50" engine. While the bore

of  $3\frac{5}{8}$  in. is common to both, the stroke has been reduced by  $\frac{3}{8}$  in. to  $4\frac{1}{8}$  in. giving a piston displacement of 170.3 cu. in. as compared with 185.7 cu. in. displacement of the "58." In spite of this reduction there is relatively little difference in maximum hp. output (the N. A. C. C. hp. rating remains unchanged at 21.03), the "50" developing 38.1 b. hp. at 2700 r.p.m. with the maximum speed 3000 r.p.m. With a compression ratio of 4.0 to 1, the torque is 100 ft. lb. at 1200 r.p.m. Due to refinements in design and the shorter stroke, the weight of the "50" powerplant is considerably lighter than that of the "58."

Three point engine suspension embracing the front semi-elliptic spring adopted originally on the "58" is used on the smaller car. At the rear end, the arms formed with the flywheel housing are secured by two bolts to gusset plates riveted to the side frame channels. The semi-elliptic spring composed of 14 leaves is bolted to the valve gear cover with the outer ends of the spring resting on the frame cross member. Engine design is conventional throughout, the block and crankcase of cast iron integrally formed, the cylinder head detachable and the oil pan of pressed steel.

Three bronze back babbitt-lined bearings support the balanced crankshaft, the dimensions of the main journals being:

	Front	Center	Rear
Length:	2 $\frac{13}{32}$ in.	1 $\frac{5}{8}$ in.	2 $\frac{13}{16}$ in.
Diameter:	1 $\frac{7}{8}$ in.	2 $\frac{1}{4}$ in.	1 $\frac{7}{8}$ in.

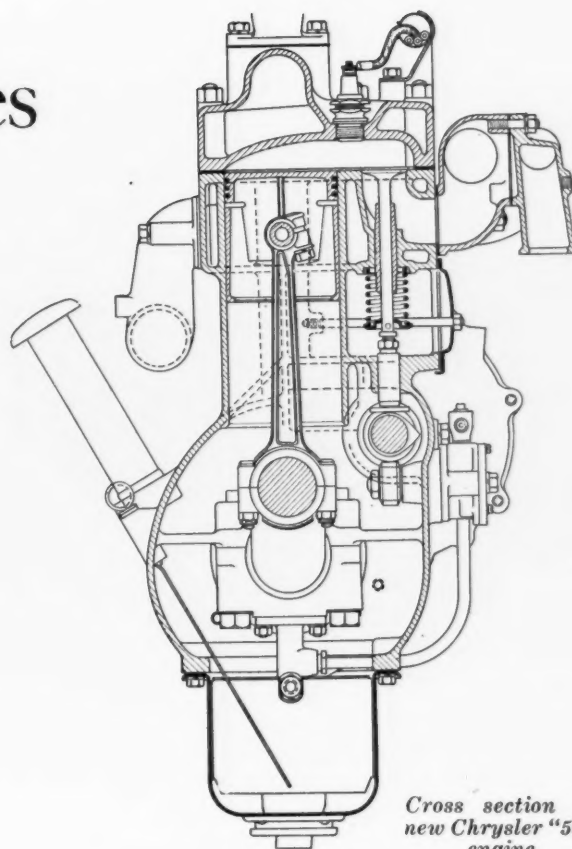
Thrust is taken by the rear bearing and the shaft is drilled to allow force feed to the connecting rods. The



# With All-Steel Bodies

## Abbreviated Specifications of Chrysler "50"

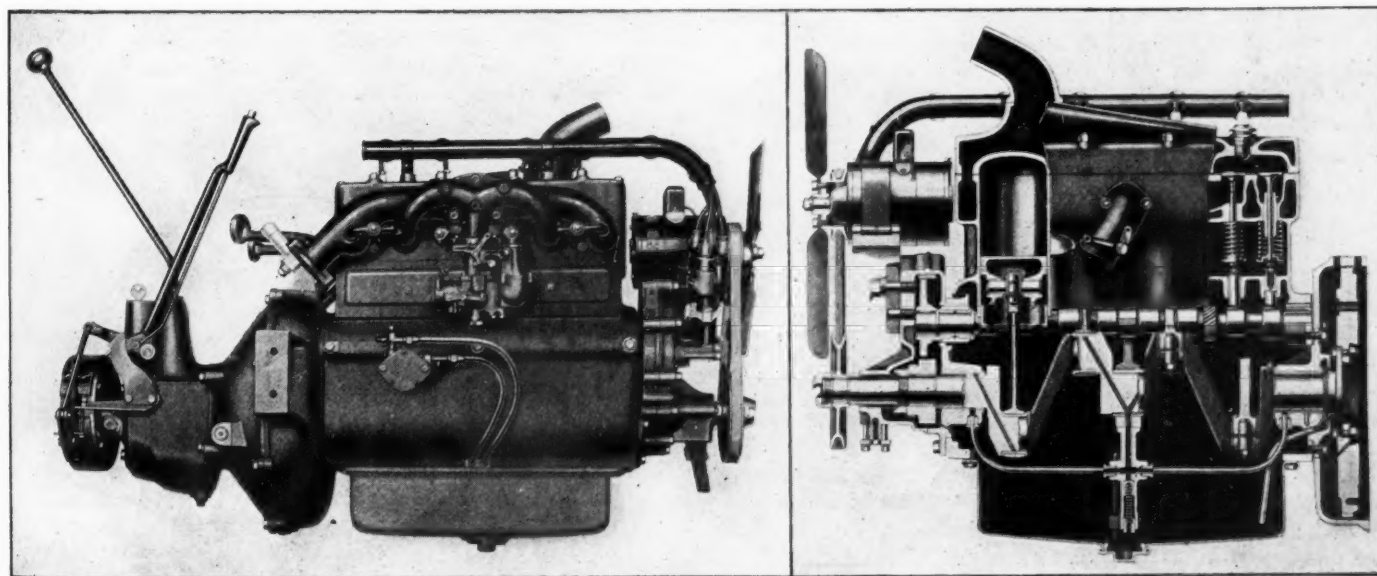
Cylinders	4
Bore	3 $\frac{5}{8}$ in.
Stroke	4 $\frac{1}{8}$ in.
Piston displacement	170.3 cu. in.
Rated horsepower	21.03
Maximum speed	3000 r.p.m.
Compression ratio	4.0 to 1
No. main bearings	3
Piston material, Lynite aluminum alloy	
Clutch, single dry plate type	
Brakes, two-wheel mechanical	
Wheelbase	106 in.
Body construction	all steel
Body styles	3
Prices—	
Coupe	\$750
Coach	\$780
Sedan	\$830



latter are of I section having a 7 $\frac{7}{8}$  in. distance between centers with the dimensions of the integral cast babbit bearing in the big end 1 $\frac{7}{8}$  in. diameter by 1 $\frac{1}{2}$  in. wide. A small hole in the upper half of the connecting rod bearing allows a spray of oil to lubricate the cylinder walls. Pistons of Lynite aluminum alloy and of the ventilated bridge type have three rings  $\frac{1}{8}$  in. wide located above the pin. The center ring is undercut and the lowest ring a Perfect Circle make, necessitating twelve 3-32 in. relief holes drilled in the bottom groove.

The length of the piston is 4 $\frac{1}{8}$  in. with the distance from the center of the pin to top of head 2 in. Cylinder bores are finished by reaming and honing, and the fitting clearance for the piston at top of skirt is .003 to .0035 in. The pins,  $\frac{3}{4}$  in. diameter by 3 in. long, case-hardened and ground, are clamped in the rod with the bearing in the piston being plain.

The front end drive consists of two helical gears, the larger being of steel with the crankshaft gear of gray iron. Front and rear bearings for the camshaft are

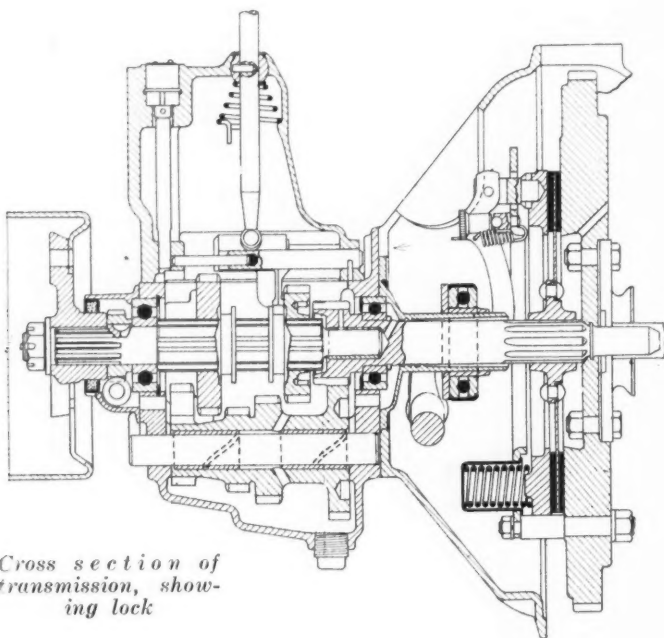


Right side of "50" engine, showing the oil pump mounted on the outside of the crankcase and driven off the camshaft. Right—Sectional view of engine, showing hollow crankshaft with oil header leading to each of three main bearings

babbitted with the center bearing machined in the case. Dimensions of these bearings follow:

	Front	Center	Rear
Diameter:	1 1/4 in.	2 in.	1 1/4 in.
Length:	1 9/16 in.	1 in.	1 3/8 in.

The oil pump gear, cut on the camshaft, is located between cylinders No. 3 and No. 4. Guides for the push rods are formed integral with the case while the



Cross section of  
transmission, show-  
ing lock

valve guides are removable. The former, of the mushroom type, are made of carburized manganese steel. The inlet valves are composed of a Wilcrome head welded to a steel stem with the exhaust valve made of chrome-silico steel. Wilcrome material as used in the inlet valves is a new development and basically is a nickel alloy. Both valves have a clear diameter of 1 7/16 in., the stem diameter is 3/8 in. and the lift 9-32 in. Recommended tappet clearance for the valves is exhaust .006 in. and .004 in. for the inlet.

Water circulation is by thermo-syphon system. The

radiator is of the vertical fin and tube type and the entire water capacity of the system is 3 1/2 gal. A V-belt off the crankshaft pulley drives a combination generator and radiator fan unit, adjustment being provided for by raising the generator cradle through the loosening of a nut which secures the entire cradle mounting to the front cover. The two bladed fan of 17 in. diameter is attached to the end of the generator shaft.

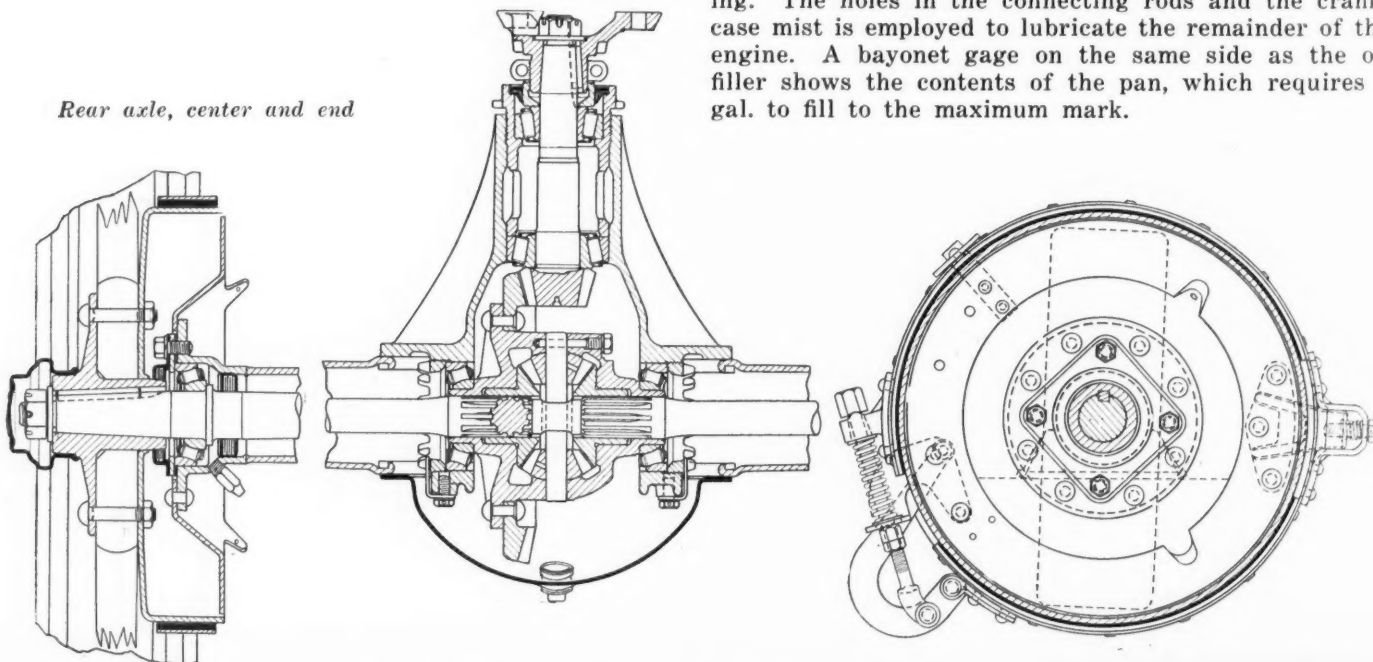
Remy make units are employed in the electrical system. The generator, already referred to, is of the conventional third brush type and the starter motor on the left side of the engine engages with the teeth cut in the flywheel by an in-board Bendix drive. The entire ignition unit, including the bevel gear drive, is mounted on the front gear cover by two bolts and connection is made by a tongue on the end of the horizontal shaft which fits into a corresponding groove in the end of the camshaft.

#### Semi-Automatic Advance

The distributor, provided with a semi-automatic advance, has a single breaker arm and carries the condenser on the outside of the base. A motor driven horn operated from the center of the steering wheel is used, while the battery is of the 6-8 volt 90 amp. hr. type. Firing order is 1-3-4-2. Fuel is delivered to the Ball and Ball plain tube carburetor from the 11 gal. Terne plate tank at the rear by a Byrne-Kingston "Oil-Vac" vacuum tank. The main feature of this system, which was incorporated also on the "58" chassis, is that the supply of fuel to the carburetor is automatically shut off when the oil pump ceases to function. A single adjustment for idling only is provided on the carburetor and the mixture in passing to the cylinders encounters a hot-spot formed in the exhaust manifold.

Full pressure lubrication to the connecting rods and crankshaft bearings is by a gear oil pump mounted on the outside of the engine on the right and driven by spiral gears off the camshaft. Exterior pipes connect the pump with the bearing header and oil pump, a screen being provided around the intake pipe in the oil pan to exclude foreign matter. From a central point below the main bearing two copper pipes deliver oil to the front and rear bearings while the timing gears are lubricated by a direct oil lead from the front main bearing. The holes in the connecting rods and the crankcase mist is employed to lubricate the remainder of the engine. A bayonet gage on the same side as the oil filler shows the contents of the pan, which requires 1 gal. to fill to the maximum mark.

Rear axle, center and end





Both clutch and transmission, carried in unit with the engine, are similar in design to those employed on the "58" model, although slightly smaller and lighter. The clutch is of the single dry plate type comprising a pressure plate assembly with six pressure springs, three release levers provided with knurled adjusting nuts spring locked, and a drop-forged steel splined hub. A stationary sleeve carries the clutch release bearing which is of the radial ball bearing type. The driven disk is 8 $\frac{7}{8}$  in. in diameter and carries a special woven asbestos composition fabric facing riveted to each side. All gears in the three-speed selective-type transmission are of special chrome steel. At the rear the mainshaft is mounted on a single row ball bearing and at the forward end is in a bronze bearing located in the main drive gear. Another single row ball bearing of Federal make, the same as the rear bearing, is employed to support the main drive gear shaft at the rear while at the forward end it is carried in a plain bronze pilot bearing in the flywheel. The counter shaft gears, formed integral, are carried on plain bronze bearings. The gear ratios are as follows:

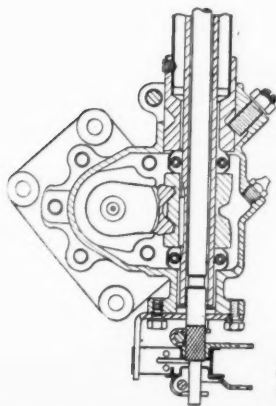
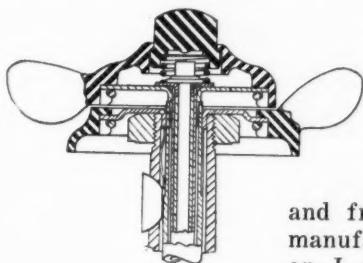
High	1.00 to 1
Low	3.06 to 1
Intermediate	1.90 to 1
Reverse	3.76 to 1

A lock of approved design is built into the transmission gear shift lever housing.

Two flexible fabric-rubber universal joints and a 1 $\frac{1}{2}$  in. diameter tubular propeller shaft transmit the power from the transmission to the semi-floating rear axle. Hotchkiss type of drive is employed. The spiral bevel gears, providing a standard ratio of 4.70 to 1, are of nickel steel, carburized and hardened. Drive gear has a diameter of 8 $\frac{1}{2}$  in. and a 1 $\frac{1}{8}$  in. face. The one-piece, pressed-steel banjo housing is formed of 3-16 in. stock with provision made for carrying the springs below the housing. Axle shafts are of chrome nickel steel, splined into differential side gears and keyed to wheel hub; their diameter at the wheel ends is 1 $\frac{3}{8}$  in.

#### Gemmer Steering Gear

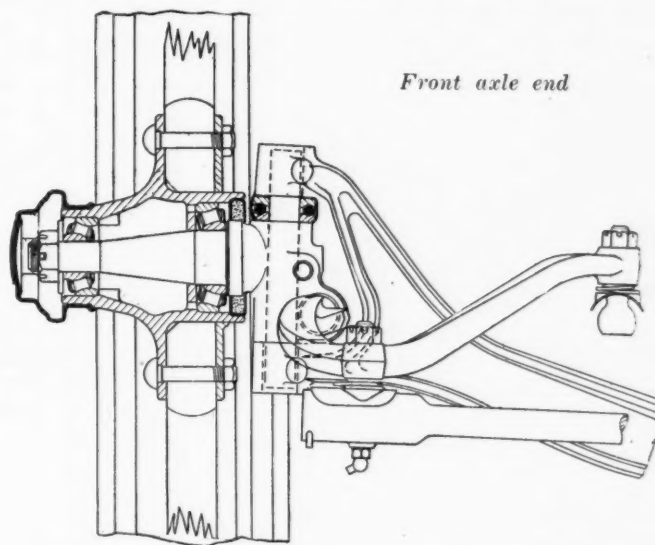
The pinion gear formed integral with the shaft is carried in the overhung manner on two taper roller bearings. Similar bearings are used on either side of the differential carrier while the bearings at the wheel ends are of the taper type also. All roller bearings employed in both rear and front axles are of Shafer manufacture. The front axle is an I section forging with ball thrust bearings at steering knuckle heads and with the springs over-mounted. Bronze bushings  $\frac{3}{4}$  in. inside diameter by 1 3-32 in. long are provided for the yokes while both steering arms and knuckles are of chrome-nickel forgings. The steering gear is of the semi-irreversible worm and sector type of Gemmer make and con-



Steering gear and spark and throttle control mechanism

nection with the steering arm is through a perfectly straight drag link.

Springs are semi-elliptics all round, those on the front being 35 $\frac{1}{2}$  in. long by 1 $\frac{3}{4}$  in. wide and 9 leaves while



Front axle end

those at the rear are 53 $\frac{1}{2}$  in. long by 1 $\frac{3}{4}$  in. wide having 8 leaves when used with the coupe and 9 for the sedan. The frame is of the straight taper type with a kick-up over the rear axle. Including the rear engine mounting, there are four frame cross members while the side channels are 5 in. deep, the stock 9-64 in. and the width of the flanges 1 $\frac{3}{4}$  in. at center section. Brakes are of the conventional two wheel external contracting type operating on drums 12 in. in diameter by 1 $\frac{3}{4}$  in. wide. A special feature is an equalizing lever on the cross rod connecting with the two brake pull rods. The emergency lever operates directly on a drum 2 $\frac{1}{4}$  in. wide by 5 in. in diameter placed immediately behind the transmission. Chassis lubrication is by the Zerk system. Wooden artillery wheels with demountable rims are used on all body models.

All bodies are finished in special shades of Duco lacquer. Both coach and sedan models are upholstered in a soft woolen texture with the 2 passenger model finished in gray Spanish leather for the seats with imitation leather on the flat surfaces. Interior hardware is in satin finish. Color schemes on the bodies follow:

- Coupe:* Body overall Mallard green with Pistache green striping. Black wheels with striping.
- Coach:* Sheraton gray with black upperstructure and the striping in Flamingo carmine. Wheels gray and striped.
- Sedan:* Marine blue with black upperstructure and gold bronze striping. Wheels blue with striping.

Standard equipment on these models includes cowl lights, hand windshield cleaner, rear view mirror, rear curtain, visor, transmission lock, and a dome light, foot rests and robe rails on the sedan.

**M**OTOR bus transportation has greatly developed in Sweden during the past year and railroads are beginning to worry about it. During the past year the motor bus routes more than doubled. In the vicinity of Stockholm there are thirty lines which transported more than 8 million passengers in 1924. In three districts adjacent to Stockholm the number of lines increased from 70 in 1924 to 160 in 1925, the number of buses in service having increased from 100 to 300. Taking the country as a whole there are at present 1,000 lines or routes with about 3,000 vehicles in service.



*Edward P. Warner, Assistant Secretary of the Navy in Charge of Aviation. Mr. Warner at 32 is one of the youngest and most brilliant aeronautical engineers the country has produced*

# Our Young and New Air

Development of youthful industry is placed in youthful hands with naming of Warner, Davison and MacCracken to Navy, Army and Commerce posts.

**Y**OUTH brings fire and enthusiasm to any undertaking. Add experience and an unbeatable combination is obtained. This the Government must have had in mind when it set out to find three men who could take over and direct intelligently the development of aviation in the Army, the Navy and in civilian walks.

At any rate, the three successful candidates for these important posts, which were created by a recent act of Congress, are possessed of both youth and experience in marked degree, and if past records are indicative of future performance each should prove easily capable of shaping and carrying out policies that will materially strengthen the nation's position in all things aeronautic.

The building and flying of airplanes is a young industry and it is perhaps fitting, if not actually essential, that its development should be in the hands of young men. Henry Ford expressed the thought when he said: "My generation brought out the automobile. It remains for the next generation to bring out the airplane."

Warner, Davison and MacCracken, our new "air secretaries," are of "the next generation." None is past his thirties. The oldest is 37; the youngest just 30. Warner is the intermediate at 32. All are experienced aviation men and all have proved by their success in private life that they possess the executive ability and leadership which will be required of them in their new appointments.

**T**HE first of the three to be named to office, Edward P. Warner, Assistant Secretary of the Navy in Charge of Aviation, needs no introduction in automotive circles. He is essentially an automotive man himself and is well-known throughout the industry. In the comparatively few years since his student days he has made a national reputation in the fields of aeronautical engineering and research. He has been active in the Society of Automotive Engineers and other technical groups and has written extensively on aeronautics and allied topics.

Warner was born in Pittsburgh, Pa., November 9, 1894. After a preparatory education he entered Harvard University whence he was graduated in 1916 with the degree of B.A. In 1917 he qualified for a B.S. degree at the

Massachusetts Institute of Technology and in the following year was awarded a M.S. degree at the same school. In 1919 he returned there as instructor in aeronautical engineering, becoming associate professor in the subject in 1920. During 1919-20 he also served as chief physicist of the National Advisory Committee for Aeronautics. Prior to this, in 1917-18, he had been in the Army Air Service as an aeronautical engineer, specializing in research, and as an instructor in the military course of aeronautical engineering at Massachusetts Tech. During 1924-25 he was consulting engineer for the Air Mail.

While connected with the National Advisory Committee he was detailed to work as a technical assistant in Europe and since has made other trips abroad to keep in touch with developments in aviation there.

The new Secretary is a member of the Society of Mechanical Engineers, the Naval Architects and Marine Engineers, the Ornithological Union and, as mentioned before, the S.A.E. He became a member of the latter in 1917. In 1923 he was elected second vice-president representing aeronautical engineering. At present he is chairman of the Aeronautic Division of the Standards Committee and is serving his fourth year as chairman of the Publication Committee. He is also a member of the Council.

Warner has been a prolific writer on both technical and non-technical subjects. His facile pen has turned from heavy treatises on aeronautics and aerostatics to articles of a lighter vein for popular magazines and newspapers. Several of his technical articles have appeared in *Automotive Industries*. Among his books, to mention only a few, are: "Aeronautical Engineering," "Aerodynamics," "Free Flight Testing," "Structural Analysis of Airplanes," etc. His latest book deals with aerostatics.

Immediately after confirmation of his appointment by Congress he embarked upon a nation-wide tour of inspection to acquaint himself with the Navy Air Service organization and equipment.

**F.** TRUBEE DAVISON, who was selected for the Army appointment, is the youngest of this interesting trio, having just turned 30. He is a son of the late Henry P. Davison, partner of J. P. Morgan in the Morgan bank, but instead of following his father into the banking business he cast his lot in politics and became one of the youngest members ever to sit in the New York State Legislature.



# Precocious Secretaries

By Robert  
L. Cusick

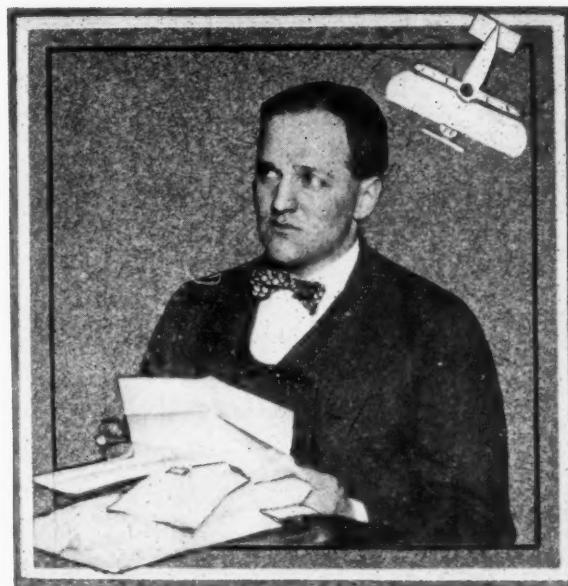


*William P. MacCracken, Jr., who was appointed to work with Hoover as Assistant Secretary of Commerce in Charge of Aviation, is 37 years old and a leading authority on aeronautic law as well as an experienced flyer*

He was born February 7, 1896, in New York City. After attending the public schools of Englewood, N. J., and the Groton School, Groton, Mass., he entered Yale University, from which he was graduated in 1918, later studying law at Columbia University Law School. He was graduated from the law school in 1922, but in 1921, before he had finished his course, he was elected to the State Legislature from the Second District of Nassau County to succeed Col. Theodore Roosevelt, Jr., who had resigned his seat to accept an appointment as Assistant Secretary of the Navy. He remained in the Legislature until his recent appointment.

In 1915, Davison, then 19 years old, served as a driver for the American Ambulance Corps in France. In 1916 he and several other Yale men established an aerial coast patrol which was at first known as the Yale Aviation Unit and later became known as Coast Patrol Unit No. 1. When the United States entered the war Davison enlisted in the Naval Air Service and became a lieutenant, junior grade. He was afterwards awarded the Navy Cross for meritorious service. During the summer of 1917 he was seriously injured when a plane which he was piloting crashed at Huntington, Long Island.

Davison is a director or trustee of the American Museum of Natural History, Canton Christian College, and the Boy Scouts of America, Nassau County Council. He holds membership in many clubs and fraternal organizations and makes his home with his wife and three children at Locust Valley, Long Island.



*F. Trubee Davison, the Assistant Secretary of War in Charge of Aviation, is only 30 years old, but he has already made his mark as a member of the New York State Legislature and during the war served with distinction as a flyer in the Coast Patrol*

Although he has not been actively engaged in aviation for some years he has retained a keen interest in aeronautical development and has been a close student of its possibilities, both from the military and commercial point of view.

THE man who will work under Secretary Hoover as Assistant Secretary of Commerce in Charge of Aviation is William P. MacCracken, Jr., of Chicago, who gained his experience in aviation as a flying instructor in the Government service during the war, with the rank of second lieutenant in the Army Service.

He was born in Chicago, September 17, 1888, a son of William Patterson MacCracken, Jr. He received his preparatory education in the public schools and was graduated from the University of Illinois in 1909. He returned to the same institution to attend law school. At the completion of his legal education in 1911 he began to practice law and became active in the work of the Illinois State Bar Association and the American Bar Association.

At the time of his appointment, MacCracken was secretary of the American Bar Association, chairman of its Committee on the Law of Aeronautics, a governor of the National Aeronautic Association and counsel for the National Air Transport, Inc., a commercial flying organization. Thus he also has kept in close touch with the aeronautical situation and enters upon his new duties with a well-defined picture of the country's needs in respect to aerial development, especially in the commercial field, where his knowledge is to be applied.

AFTER the records are scrutinized, it is doubtful if three men better qualified for these positions could have been found. They stand as three examples of eminent success in activities which have had a background of practical aviation. They are young, but they are in jobs which call for the mental vitality and vision of youth. That they have poise and stability beyond their years is evident from their achievements.

They are young—but precocious.

# Oakland Departs From Orthodox Practice in Press Room Layout

Machines arranged irregularly to facilitate straight-line production. Ingenious design of continuous chain conveyor allows free use of traveling crane. Man-power is reduced.

By Walter L. Carver

**I**N the new press room which recently has been put in operation at the plant of the Oakland Motor Car Co., automotive manufacturing experience has been combined with stamping practice. For this reason some departure has been made from orthodox press room practice. In the conventional press room, all presses are lined up like so many companies of troops, but this is not the case in this installation and the answer is that the irregular arrangement decreases the man-power requirement.

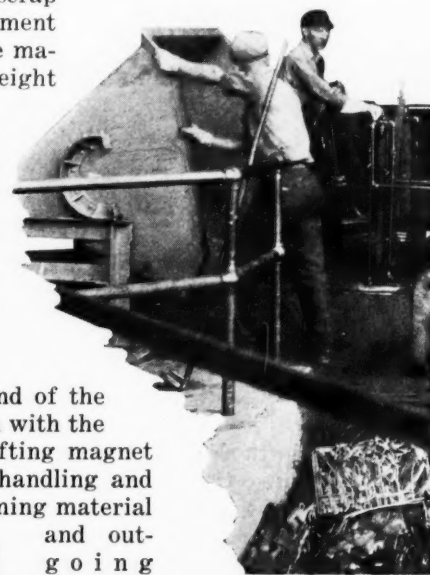
Another unusual feature is the installation of a continuous chain conveyor across a crane bay. As is usual in large press shops, a great deal of the handling of material, dies, etc., is done by a large traveling crane which traverses the entire length of the main bay in which the presses are placed. But in this shop a transverse chain conveyor carries fenders and similar parts across the shop and up to a finishing deck. The usual objection to this arrangement is that the hook of the traveling crane will tear out the lateral conveyor and its superstructure. However, by inclining the conveyor structure so that its end terminates close to the floor, a wide gap permits all of the uses of the overhead conveyor with no difficulty.

In line with machine shop practice, presses and their auxiliaries which make parts of similar characteristics and destinations in the shop are grouped, and cross aisles for their delivery are incorporated so that congestion such

as occurs in the usual press room is eliminated. In fact it may be said that one entire side of the shop constitutes the outlet for stamped parts while one whole end is the source of incoming sheets and strips.

In this arrangement the value of the traveling crane, which traverses the length of the shop, as a distributor of raw material is obvious. Finally, a comprehensive scheme for handling scrap fits into this arrangement by discharging waste material back to the freight

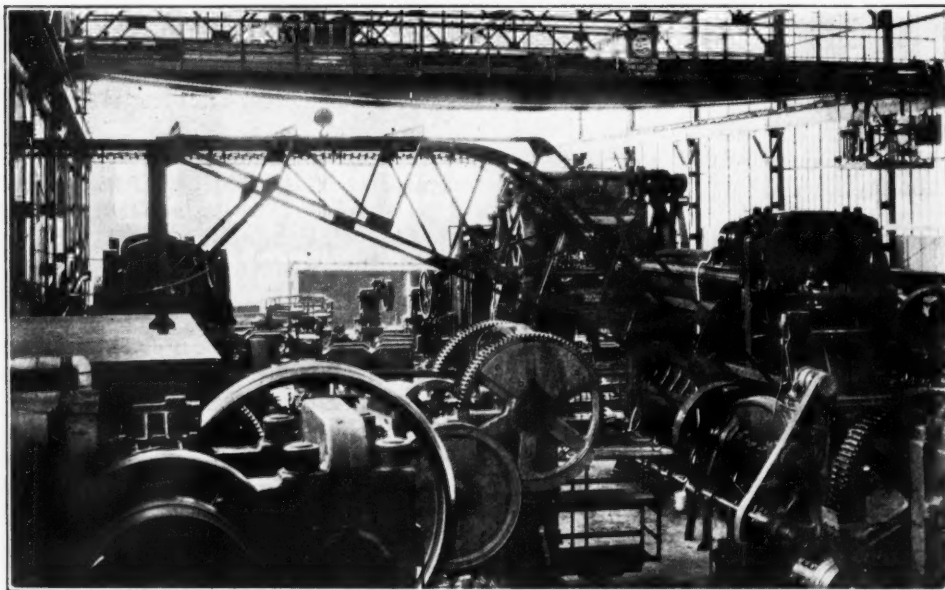
*Fig. 3. Scrap is baled in Logeman baler, discharged into a pit and ultimately transferred to gondola car by electric crane and magnet*



cars at the intake end of the shop. In conjunction with the traveling crane, a lifting magnet reduces the cost of handling and delivering both incoming material and outgoing scrap.

Practically no press in the entire shop is assigned to continuous operation on one part. However, planning has resulted in groups of presses and auxiliaries which function smoothly in the production of parts requiring similar press capacities. For example, one group of four presses is laid out so that with one set of tools the engine oil pan starts at one press and makes the round to completion. With another set of tools, the radiator shell starts at another press of the same group and passes through all four for all of the press room operations.

Fig. 1 is a view of the east end of the new press room and shows the general arrangement of presses as well as the overhead crane and the conveyor to the fin-



*Fig. 1. General view of new Oakland press room, showing use of chain conveyor and clearance for traveling crane. Presses are grouped for production of parts of similar characteristics and destination*



ishing deck. This picture was taken from the extreme west end of this deck. The clearance for the traveling crane along the south side of the shop is obvious as is the proximity of the loading end of the conveyor to the large presses which are used for fender production. In this view the absence of drop cords, low belts, etc., is emphasized.

Fig. 2 is a close-up of the fender presses which are assigned to the Oakland job, although one of them is set up for another job. The forming press in the background is a Toledo No. 796-C equipped with a Marquette air cushion. The valves for the latter are shown at the extreme left. In this press the forming, including the draw of the full crown fenders, is done.

The air cushion supports the lower die while the outer upper die comes down to grip the stock around the edges. Then as the inner upper die descends for the crowning operation, the control valves for the air cushion come into play and allow about 6 in. depression of the lower die while maintaining high pressure which insures the finished form of the fender.

This view shows also the arrangement of the Oakland fender battery. After the crowning operation, the fender stamping is trimmed partially in a Collier Smith roller shear, which is shown immediately in

front of the large press. Then the fender goes into the Toledo trimming press shown at the left. It will be noted that this press is set at right angles to the large press and parallel to the line of travel of the fender from the first operation to the head of the conveyor. In this arrangement, the part, after trimming, is lifted out of the press at the front instead of the back, as is usual, and the labor of at least one man is saved. Another Collier Smith shear will be placed between this press and the head of the conveyor for final trimming.

All finishing work on fenders and similar parts is done on the deck at the west end of the shop. The conveyor carries these parts from the presses to the loop on the deck and from there they are conveyed along to the cleaning and enameling operations.

Scrap disposal, which is the bugbear of most stamping and press shops, has been worked out in this case so that handling is reduced to a marked degree. At each press where scrap originates is placed a Roura Iron Works dump truck which is designed to be moved on an electric factory lift truck. Scrap is transferred to these trucks and as they are filled a lift truck transports them to a

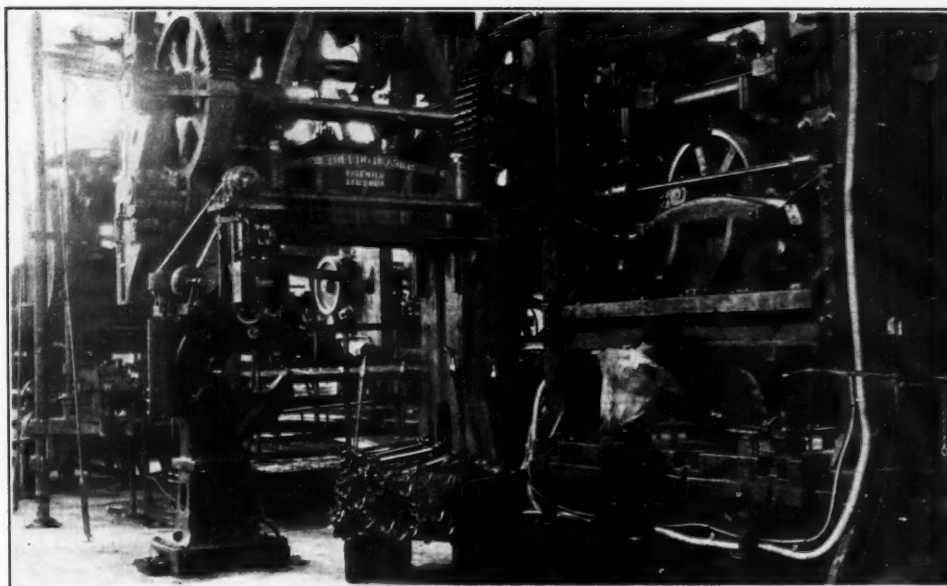


Fig. 2. Close-up of fender battery, which is close to head of conveyor

Logeman Brothers Co. scrap baler which is set in the floor near the extreme east end of the shop adjacent to the switching spur. As shown in Fig. 3, one of these trucks is being dumped into the hopper of the scrap baler.

Pneumatic rams and lifts constitute the major portion of the scrap baler. After the transport truck has been dumped into the hopper of the baler, a pneumatic lift discharges the contents into the baler proper. One ram moves forward to act as a cover while a lower ram drives the scrap into the near end of the compartment. Then a vertical ram moves upward to complete the baling process. No outside straps are used on the bale as the sheet metal scrap interlocks into compact rectangular form with a weight of 200 lb. or more.

When the baling is completed, the pneumatically operated cover is withdrawn and the vertical ram carries the bale up to the level of the floor. Then the cover is utilized to kick the bale over into the storage pit. This pit has one car load capacity and as it is filled the overhead crane with an electric lifting magnet is used to transfer the bales from the pit to a gondola car which is to the left of the baler.

IN the course of a paper on "Lubricating Oil," J. E. Hackford said that he doubted if the statement that "oil knows no fatigue" could be accepted. Oil itself, as distinct from asphaltum, may be regarded as a hydrocarbon soluble in equal parts of ethyl ether and ethyl alcohol. During the oxidation of oil, with the formation of acidity, asphaltum is also produced, as is already well known. The recovery of a spent lubricating oil by any of the ordinary methods involves the removal of the acidity, water, dirt, etc., but none of the methods removes asphaltum so formed. With the increase of the asphaltum content, which has no lubricating properties, the quality of the oil must deteriorate and therefore the oil shows signs of fatigue.

### Spicer Universal Joints

THE statement in the Aug. 5 issue of *Automotive Industries*, page 208, that the new Moon Six-Sixty is equipped with Mechanic universal joints, was made through error as these parts are of Spicer construction.

# 1927 Motorcycle Models Here

## Indian "Prince" Fitted With Multiple Disk Clutch Wheels Are Smaller, Crankshaft Larger

"Scout" and "Big Chief" models also improved, latter being equipped with removable cylinder heads and lighter pistons.

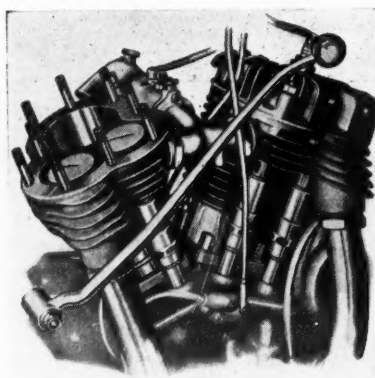
By Athel F. Denham

A COMPLETE line of new 1927 models has been announced by the Indian Motorcycle Co. On the Indian Prince model the mudguards have been redesigned, being much larger than formerly to give better protection to the rider, and have been beaded and striped to improve their appearance. The semi-bucket type saddle has been lowered to bring down the center of gravity and make for better riding qualities. Wheels are considerably smaller than on former models and are now equipped with 25 x 3.30 balloon tires.

Foot boards are now standard on this model, while foot rests are still optional equipment. There is also an option on the type of clutch control, which is now of the handle bar type as standard, although a rocker pedal type control can be furnished if desired at no extra cost. A further improvement toward ease of control is an increase in the braking area of approximately 250 per cent. A larger brake pedal also has been provided.

The clutch used in the 1927 Prince is of a new design, being of a multiple disk type. A further change in the equipment is the method of driving the Splitdorf generator, which is now by means of a leather belt instead of the chain formerly used. Alemite lubrication is provided at all points where oiling is necessary.

There are also a number of changes in the engine, chief among which is the larger crankshaft and increased size of the camshaft bearing. The valve tappets are now provided with grooves to provide better lubrication of the valve stem and plunger, and Drain-Oil rings have been fitted to the pistons to assure constant cylinder lubrication as well as to decrease crankcase dilution. The valve



The engine of the Indian Big Chief model is now made with removable head

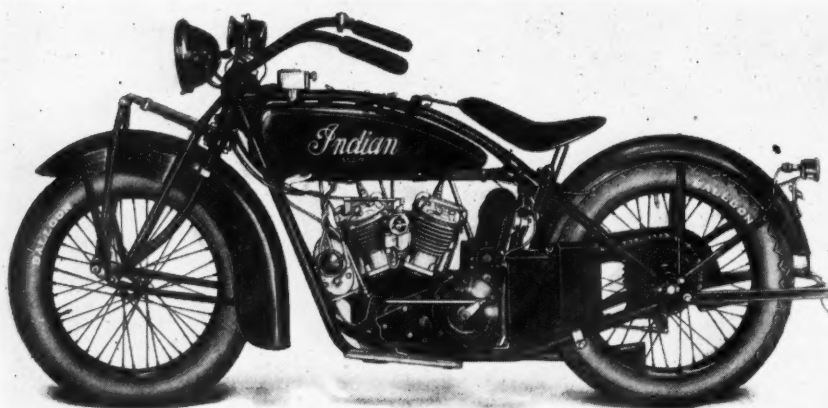
lifter which formerly passed through the tank in the Prince has been removed from that location and is now operated by the foot through a lever on the distribution casing. Heavier rear fork ends are also provided on the Prince to minimize spreading and larger axle nuts are provided to facilitate adjustment and alignment of wheels.

Changes in the mudguards which are wider and provide more clearance, and thus facilitate removing of the wheels when necessary, also feature the improvements on the Indian Scout model. In addition, a new muffler has been designed for this model to eliminate back pressure and to decrease noises from the exhaust. As on the Prince, the bucket type saddle has been improved and lowered and changes have been made in the saddle suspension to give better riding qualities. As a further endeavor to lower the center of gravity, the battery box has been placed lower while the box is now fitted with a removable side to give easy access to the battery. The position of the valve lifter has been changed and it now passes through a bushing in the fuel tank as it formerly did on the Prince.

This change has been made to give greater compactness and to eliminate interference with the knee grip.

Changes in the engine consist of the installation of a larger camshaft and larger camshaft bearings as well as oil control type piston rings to reduce crankcase dilution and to insure proper lubrication of the cylinder and piston. The foot brake lever on this model is somewhat heavier and larger than on former Scouts.

Removable cylinder heads of a design similar to that used on the Prince and Scout feature the changes in the Big Chief. The pistons have been lightened considerably, although cast-iron is still used, and the pistons are fitted with Drain-Oil rings similarly to the Scout and Prince. The lower connecting rod bearings are now fitted with grooves to insure



This view of the left side of the 1927 Indian Scout model shows the lower position of the battery box and the wider mudguards, also the improved saddle and suspension



proper lubrication and the inlet valve tappets have also been grooved to achieve the same effect regarding the lubrication of the tappets and valve stems. There is now a sump in the crankcase providing a reserve oil supply. As in the Scout, the valve lifter on the Big Chief now passes through a bushing in the tank and the same type of muffler of improved design as on the Scout is also used

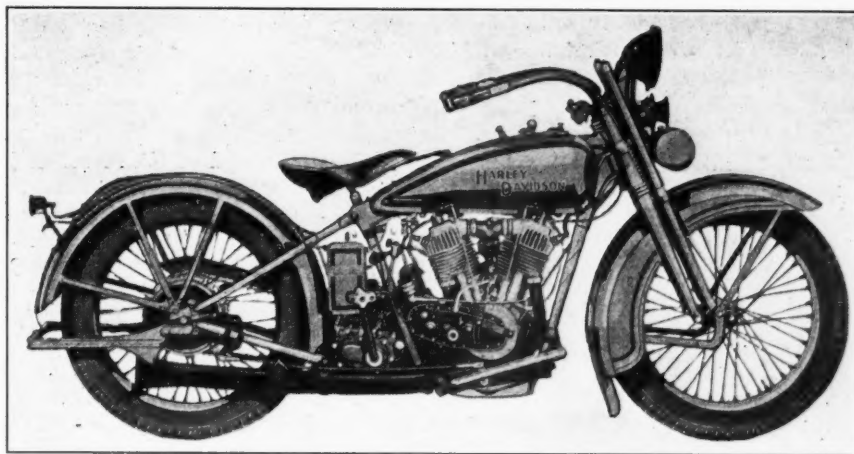
on this model. Alemite lubrication is provided at all points requiring lubrication on the Big Chief as well as the Prince and Scout.

Prices on the Big Chief and Scout remain unchanged at \$335 and \$285, respectively, while the price of the Indian Prince has been increased \$10 and now lists at \$225 with complete electrical equipment.

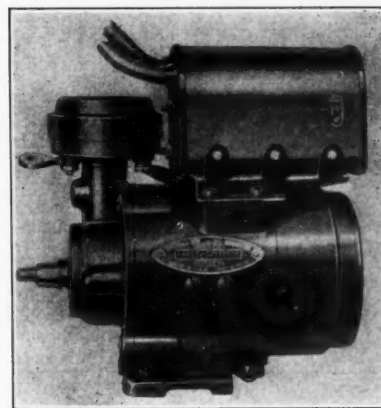
## Water and Weather-Proof Ignition Unit Used on New Harley-Davidson

**A**LTHOUGH numerous changes and improvements have been made in the 1927 model by Harley-Davidson Motor Co., price reductions of \$15 on the 74 cu. in. 27 JD and \$5 on the 61 cu. in. 27 J accompany the an-

design, but the inlet housing caps have been slotted to provide better air circulation around the valve springs and valve stems in order to reduce their operating temperatures. Aside from the changes made in the engine



*Water and weather-proof ignition unit is a feature of the 1927 Harley-Davidsons. A special chain sprocket construction is also used*



*Harley-Davidson water and weather-proof generator unit*

nouncement. These models now list at \$320 and \$310, respectively.

One of the most important improvements is the development and use on the new models of a water and weather-proof ignition unit. As in previous models, the ignition unit is still located atop of the generator, but the distributor cap has been eliminated. All connections are now made internally and the coil itself is water and weather-proof, all parts being sealed in moisture-proof compound. The electrical system on the new models seems to have received considerable attention, as a further change is noted in the headlight connections in which the contact plug has been eliminated, all connections now being made at the switch box.

There are no major changes internally in the engine

and electrical system, a feature worthy of attention is the patented angle tooth used on the sprockets. These new type sprockets are said to eliminate entirely all chain whip and lash. As in former models, Alemite lubrication is used throughout, while 27 x 3.85 balloon tires are standard.

There have also been some changes in the side car which tend very largely to enhance the appearance of the new models. They are longer and are provided with a rolled bead along the sides from front to rear. Changes have also been made in the sidecar hub bearings, which are now held in special retainers and are equipped with Alemite connections.

No changes have been announced on the single cylinder model, as Harley Davidson is not manufacturing yearly models of this type.

## Engine Lubricating System of "Ace" Redesigned to Provide Pressure Feed

**M**ICHIGAN MOTORS CORP., of Detroit, which is now manufacturing Ace motorcycles, has made a number of major changes on the 1927 models. Chief among the changes is a redesigned lubrication system in the engine which now consists of a pressure feed through the drilled crankshaft to all bearing surfaces under 30 lb. pressure. The oil pump and pipes are enclosed in the crankcase, thus protecting the entire me-

chanism against damage from flying stones and from freezing in the winter time.

Although completely enclosed, the oil pump assembly is readily accessible. The oil pan and the strainer for instance can be removed independently of all other connections to facilitate cleaning. Lubrication of the cylinder walls is directly through the drilled crankshaft, no baffle plates being used. An oil control type of ring is fitted to

the lower groove of the piston. Oil pressure can be regulated from an external connection. Mounted on the right side of the gear casing in plain view of the rider is an oil pressure gage, while an oil level gage consisting of a notched rod is also provided. The oil reservoir, which is located in the lower half of the crankcase, will hold one gallon.

To provide greater ease of control, the handle bars for the standard model have been widened 3 in. between the grip ends. The inlet manifold has also been redesigned to provide an easier gas flow while the valve sets have been improved by redesigning the valve cage. The result of these two changes is to provide increased power and speed. As in the past year, the Sporting Solo is equipped with alloy pistons, although a new design has been adopted for 1927, three rings being provided, the lower of which is of the oil control type.

On the standard model, further changes in the engine include a piston pin of the floating type and longer tappet guides to provide increased bearing surface at this point. Changes in the clutch have also been made for 1927, and now combines cone and nut in the clutch cone.

In order to improve the appearance of the 1927 Ace, the motor base, tank, mud-guards and frame are now finished in lacquer while the wheels, handle bars and other parts are finished in black enamel. Nickel-plated handle bars are also provided on the Sporting Solo model.

The first public showing of the Ace was made at the Rochester Rally, beginning August 13, where both the Standard model and the Sporting Solo were demonstrated.

## Reserves for Instalment Sales

**T**O make instalment selling safer, H. E. Gilbert, of the Ohio Buick Co., of Cleveland, Ohio, in the current issue of the National Association of Credit Men's *Credit Monthly*, suggests the creation of reserve funds or insurance to meet any unusual hazard.

Mr. Gilbert says that in instalment selling first, the recognized rules of handling credits must be observed; second, that reserves or insurance should be employed to safeguard risks and third, that the value of the article at

any time during an instalment transaction should never be less than the payments that are due, for, as Mr. Gilbert says, "no one of us enjoys paying for a 'dead horse.'"

Mr. Gilbert says that instalment selling experience to date has been infinitely better than the average of other credits.

"A proper time payment plan," Mr. Gilbert says in part, "used in connection with the sale of merchandise to which it properly applies, based upon sound credits, has a proper place in the field of commercial activities today. There are certain fundamental laws which must be applied to make it successful, the transgression of which will lead to disaster."

In discussing the need of reserves to meet conversion or the selling of merchandise by the buyer and the failure to make the remaining payments, Mr. Gilbert says:

"Conversion is one of the additional hazards which one of the industries which is a large user of time payment sales has to contend with; but conversion can be practically eliminated by a selection of risk or by getting additional signers on the transaction, not primarily for the purpose of making a third party pay for merchandise which the principal absconds with, but for the very practical reason of having a third party interested in helping find the principal and obtain the return of the merchandise or the payment for it."

## Gas Gage Embodies New Principle

**I**N a gasoline gage recently placed on the market by the Damsel National Gauge Co., Columbus, Ohio, an electric circuit is closed by a float when the fuel falls to such a level that only 2½ gallons remains in the tank. A float of special construction, and connected with the electric system, then closes the circuit through a tell-tale light mounted on the instrument board, and the lighting up of this lamp indicates to the driver that his fuel supply is nearing exhaustion. The lamp goes out again when the fuel supply has been replenished. The vital part of the control mechanism is a 1¼ in. disk of molded Bakelite, in which is solidly embedded a series of accurately spaced metal contacts. These contact points control the dial lever on the dashboard gage and automatically switch on a light when the fuel supply runs low. A special ignition switch prevents the light from operating except while the car is actually in motion.

The Bakelite used in this gage has been subjected to an insulation test under 500-volt alternating current by the Underwriters Laboratory of Chicago, as well as to a mechanical endurance test of 800 cycles per minute for eight hours, to ascertain its ability to withstand the strains of daily service on the road.

## Wrong Packard Illustration

**T**HE drawing appearing on page 246 of our issue of August 12 and captioned "Packard rear axle gear cutter," was inserted in the Packard article by mistake. The drawing, which shows the machining operations on the Packard "stem pinion," was prepared for another article.

**A** COPY has been received of a book containing brief specifications and illustrations of all of the cars and trucks on the German market toward the end of 1925. It is entitled *Die Motorwagen des Jahres 1925* and is published by Deutsche Verlagswerke Strauss, Vetter & Co., Berlin C-2, Breite Strasse 8-9, at the price of 3s. 8d.

## A New Hose Clamp

**A** NEW hose clamp for automobiles and airplanes has been patented by Paul H. Wilkinson of Los Angeles. This clamp consists of 1½ in. of flexible cable, one end of which is a threaded pin. At the other end a button is attached. The cable is slipped through a hole built in a metal casting or forging conforming to the shape of the hose for about 1/6 of its diameter, and is wrapped



New type of hose clamp said to eliminate all leaks

around the hose and the threaded end tightened at the other end of the casting by means of a wing nut. It is claimed that through this design, on account of the even concentric pressure, all leaks are positively eliminated.



# Just Among Ourselves

## We Have an Argument About Safe Speeds

**G**OT into an argument with an engineer the other day and as usual was routed in the eyes of the other participants in the conversation but unconverted to the end. "How can highway authorities set an efficient and at the same time safe speed limit," says we, "when the safe speed of cars varies so widely. Forty miles an hour seems like flirting with death in some cars with some drivers while 60 m.p.h. is as safe as a baby's crib in others under open road conditions. If the highway speed limit is to be safe for all cars and all drivers, it must be set at the maximum safe speed of the least stable and most poorly controlled car on the road—at the least common denominator, in other words. That automatically means that capable drivers of more stable and better controlled cars either must operate at less than their maximum safe speed or become law breakers."

\* \* \*

## Says the Difference is Largely Imaginary

**"B**UT," comes back my argumentative engineer, "there isn't such a great difference in safe speeds as you think. It's only an apparent difference because of the difference in riding comfort of various cars as speeds increase. In some cars you feel as though you were going faster at a given speed than you do in others. That warps your idea of the relative safety factors." In the end, however, we learned that this engineer is in favor of abolishing all speed limits as being unscientific and usually blundering attempts to set standards on a complex question, the standards for which vary, not only with the construction of the

car, but also with the ability, physical condition, and general psychological make-up of the driver. We didn't have much of an argument on that score, because this conception fits in with the idea that speed regulation if set up at all as a single standard must be adapted to the potentialities of the least safe vehicle on the road and the least capable driver—which obviously means a high degree of operating inefficiency for more capable drivers in other cars if they are to observe the law. Theoretically, at least, a "safe speed" would seem to be a matter of the individual car, the individual driver and the particular set of surrounding circumstances.

\* \* \*

## Some Definitions of a Safe Speed

**A**T an S.A.E. meeting last year, Dr. H. C. Dickinson defined safe driving in his proposed "clear course" law which read "No vehicle shall be operated at a speed greater than that at which the driver can stop it within the assured clear course ahead." Dr. Dickinson's idea was that such a law would educate as well as regulate. A prominent motor vehicle commissioner a few years ago defined unsafe motor vehicle operation as "outdriving your brakes or your headlights." Both of these definitions are in line with modern, constructive thought along speed regulation lines. Inordinately low speed limits are practically impossible to observe, a fact which is being recognized in many places by the efforts of traffic cops to speed up the slow driver and to keep traffic lines moving at a maximum safe speed rather than a minimum possible speed. And one State has a minimum speed law for certain stretches of road.

## Egyptian Prince's Idea of a Racing Car

**PRINCE DJELALEDIN**, an Egyptian sportsman, has just placed orders in France for the construction of a twin-engine 700 horsepower record-breaking automobile, to the designs of Engineer Moglia, which will be used in an attempt to capture the mile and kilometer records at present held by J. Parry Thomas. The engines are already built and are straight eight models of 107 by 140 mm. bore and stroke, with a nine-bearing crankshaft and two overhead camshafts operating two valves per cylinder. One of these engines has been tested in the French State aviation laboratory and developed 355 hp. at 3000 revolutions.

\* \* \*

## Speed Estimated at 250 Miles an Hour

**T**HE new racing car has the engines in tandem, one driving the front wheels and the other transmitting power to the rear wheels. The driver is placed between the two and has the usual controls operating the clutches and gear shift simultaneously. In order to allow for variations in speed of the two engines, each axle is of the overrunning type. The chassis, which is long and narrow, also forms the body, and is carried on double diagonally placed quarter elliptic springs at front and rear. The total height of the car is not more than three inches above the top of the engine, for the radiators, one at each end, are considerably inclined. The gas tank is mounted at the extreme rear, in order to diminish the fire risks. With this design the load is equally distributed on the two axles. It is estimated that the car will weigh 3500 pounds and that it ought to show a speed of 250 miles an hour.—N. G. S.

# Simplicity of Operation is Feature of New Baker Steam Bus

Steam generation controlled throughout automatically and driver's work is confined to steering and to operation of foot throttle and brakes. Engine system started by switch.

**E**XHAUSTIVE road tests are now being conducted on a fully-automatic, electrically controlled steam bus chassis embodying several new features in the method of applying steam power to automotive vehicles. The chassis, constructed by the Steam Appliance Corp. of America, Inc., Cleveland, Ohio, is at present on a tour through the eastern states where it is being inspected by the officials of several railroad companies interested in the application of steam power for bus work.

In the development of the chassis, which is suitable either for single or double deck service, the manufacturers have coordinated certain desirable features of conventional bus design with the Baker boiler and steam generator, and the finished model represents a bus chassis which has been designed throughout specially for steam power operation. The price of the chassis will be in competition with large gasoline-driven buses, selling, complete with body, in the \$10,000 price class.

The outstanding feature of the new chassis is the simplicity of operation and the absence of regulating valves and cocks which are usually found on steam vehicles. As

far as the driver is concerned, the bus operates like any other vehicle except there is no clutch or transmission. A conventional foot throttle is provided for governing the speed, and for starting the bus from cold after it has stood for some time the only operation necessary is to turn on a switch similar to an ignition switch on a car. After this is done the firing, water supply and steam pressure are regulated automatically, and the bus is ready to get under way in three to four minutes.

## Steam Generator Modified

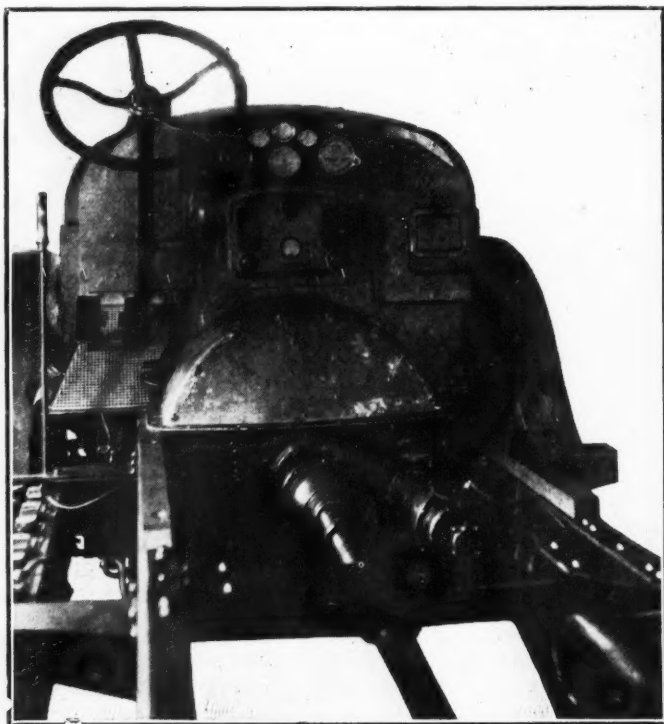
The boiler and steam generator are not strictly new developments although they have been modified for this particular type of service. Since 1923, when the Baker Motors, Inc., was formed, production has been concentrated on the manufacture of RotoBaker power units which are used extensively in the industrial and mining fields. For over two years the RotoBaker power units of the same general type have received automotive application in five different types of vehicles and the units employed in the bus chassis are an outgrowth of the original industrial RotoBaker power units. In December, 1925, the Steam Vehicle Corp., sub-licensee of Baker Motors, Inc., was formed to take over the manufacture of automotive vehicles with RotoBaker power units.

While the chassis is new throughout it follows conventional bus design with the exception, of course, of the powerplant. The new Goodrich special oval balloon tires for buses, size 36 by 6 by 7 in. are employed. The front springs are secured to the frame at the rear end with the front shackled to Westinghouse shock absorbers, while at the rear the springs carrying the Eaton double reduction axle are provided with Lovejoy shock absorbers mounted on a tubular cross member of the frame. The chassis has been designed to conform with the bus regulations of all states, the overall width being 84 in. and the wheelbase 235 in.

## The Powerplant Units

In dealing with the powerplant the four major units, the steam generator (boiler), engine, condensing system and burner, will be treated separately for the sake of clarity, although they actually form an integral unit.

The water tube steam generator is formed of 16 sections which are interchangeable and quickly detachable. The steam generating coils of  $\frac{3}{4}$  and 1 in. diameter are "L" shaped and at the lower end are welded to a vertical header with the outlet at the top of the "L" welded to an arched cross connecting tube. On either side of the top of the coils a single water drum is employed and between these and slightly above them are the storage drums. Separation



A view of the Baker steam bus which shows the dash and instrument group. The circular casting in the center houses the rotary reciprocating engine



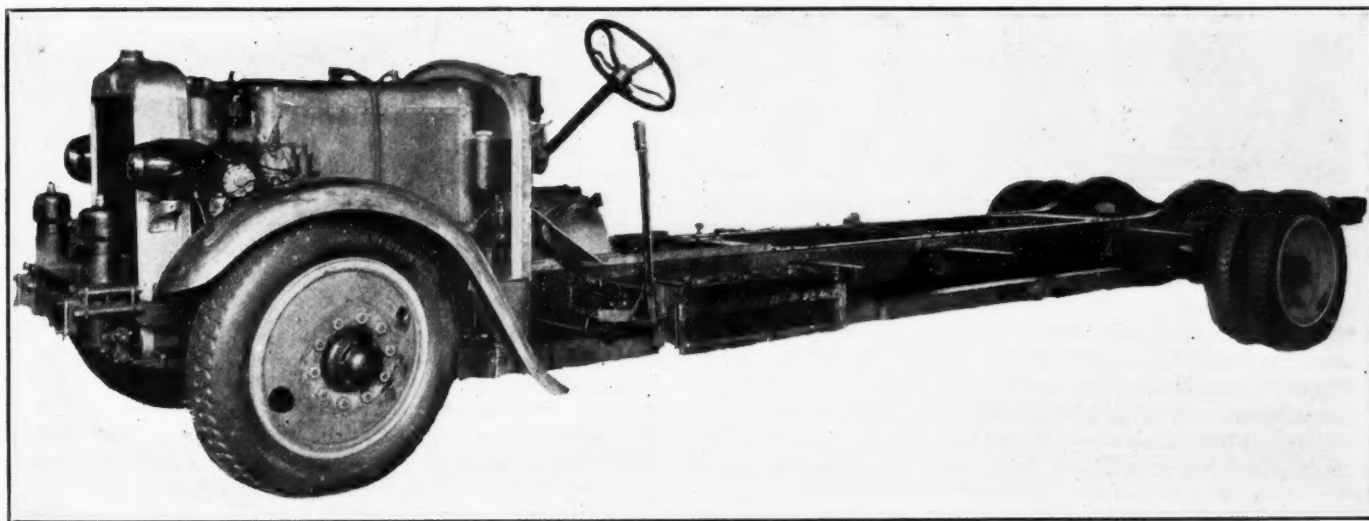
of the steam from the water takes place in the upper half of the water drums and from there the steam is dried in the storage drums. By means of an equalizing tube located in the top of the storage drums the steam is taken from the generator and passes to the throttle, then to the superheater and finally to the engine.

#### Section Header Tubes

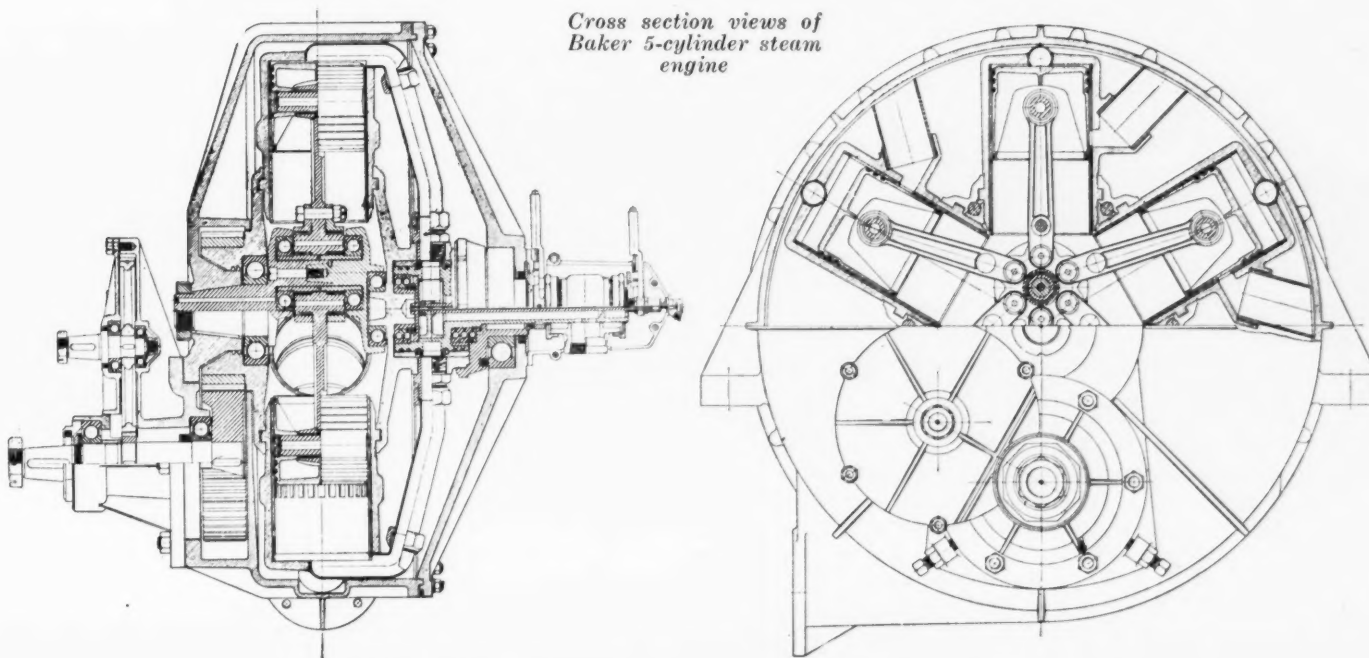
Section header tubes consist of the two vertical members and one horizontal member which connects with the lower end of the vertical headers. This arrangement forms a water wall completely around the combustion chamber, the latter being lined with a special refractory material cemented together to form a monolithic lining approximately  $1\frac{1}{8}$  in. thick. The insulation around the generator is quickly detachable and is mounted in panels attached to cast aluminum trap, well insulated. The entire generator and burner are carried in the frame at three points with the single support toward the rear.

Water is delivered to the generator automatically by means of an electrically operated trap. This device consists of a steel bottle filled with water from the rear water sup-

ply tank by means of a small gear pump, the latter being driven by a reversible electric motor running at 1750 r.p.m. Inside the bottle is located a special high pressure float actuating a switch which closes the circuit to a solenoid valve which in turn opens and admits steam to the water bottle until the pressure within the bottle equals the pressure within the generator. At this point the water pump is reversed by a mercury tube switch operated by the solenoid valve and the water under the steam pressure is pumped out of the bottle into the generator. To complete the entire cycle, approximately 20 seconds is required. In starting the powerplant, the operation of the control switch starts the trap system and brings the water in the steam generator up to the proper level where it automatically breaks the trap circuit. As soon as the water reaches the proper level the fire is started automatically and this prevents the possibility of firing up without a sufficient head of water in the generator. In the system there are no manually controlled valves or similar devices and this reduces the possibility of the human element causing damage to the powerplant. Under normal conditions the steam pressure is 600 lb. and the temperature 575 to



*This side view of the Baker chassis shows the clean effect imparted by the steam generator. The tires are special Goodrich balloons, size 36 by 6 by 7 in.*



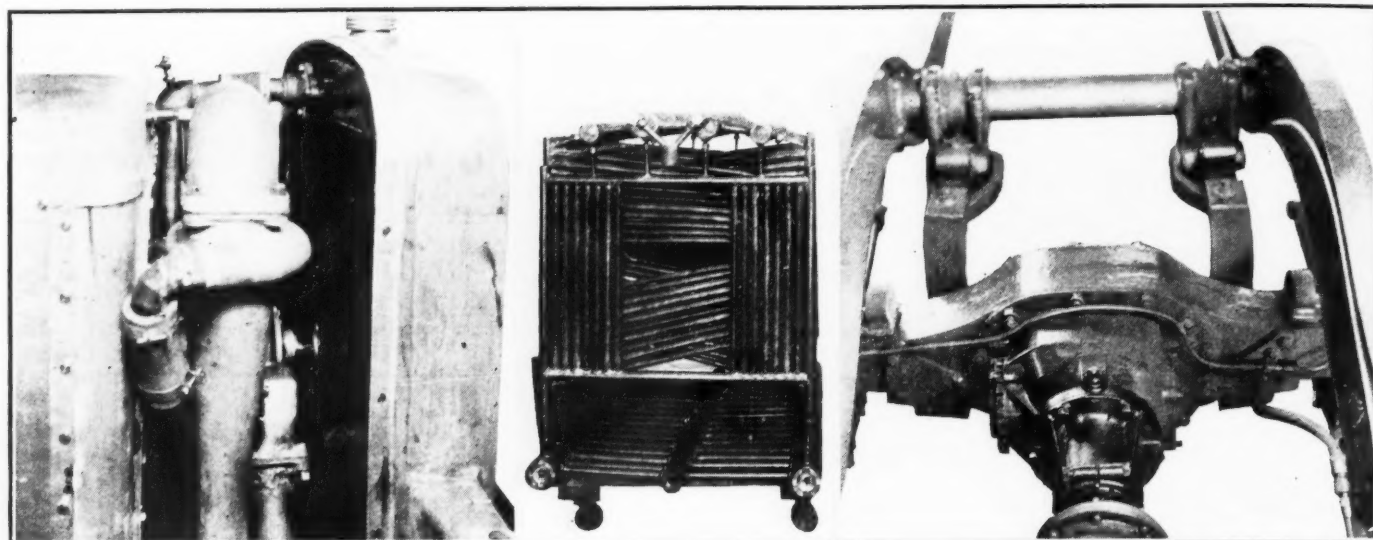
*Cross section views of  
Baker 5-cylinder steam  
engine*

625 deg. Fahr. The entire generator is tested to withstand a hydrostatic pressure of 4000 lb. and designed to have a factor of safety of 10 to 1. The engine has a 6 to 1 factor of safety.

An open fire type burner is used and a small vane fan driven by a two speed electric motor supplies air for combustion. By means of twin Auto-Pulse pumps, fuel is drawn from the 40 gal. tank on the right side of the chassis and delivered to a float feed chamber. From this

the rear of the generator and is a five-cylinder rotor reciprocating type with semi-uniflow. The accompanying cross section views give a good idea of the general layout and show the method of connecting the pistons with the crankshaft by means of link rods attached to a master connecting rod.

Steam is distributed by means of a single balanced valve having three ports and an automatic back pressure relief. Steam "cut-off" is controlled by means of a small cylinder



*Left—Turbo pump and turbine-driven fan for the condenser. Absence of piping and valves should be noted. Center—This steam boiler, or generator, is not the actual one employed on the bus chassis but is of the same general design. Right—The Eaton double reduction axle is of special design. Lovejoy shock absorbers are attached to the tubular cross member*

chamber the fuel is metered through a jet to a mistifying pump, the latter being operated by the blower motor. After the mistifying pump has broken the fuel into a fine fog it is delivered under slight pressure to the burner nozzle. The fuel enters the center of the air stream by the nozzle and in the burner entrance tube it is mixed in the right proportion with the air to form good combustion.

Ignition is by a standard spark plug located near the nozzle in the burner tube with a regular automobile breaker and coil used in conjunction. The air fan, mistifier, and the breaker for the ignition are all driven by a single electric motor so that the control of the fire resolves itself into a simple make and break switch in the motor circuit. This switch is located on the back of the steam gage and is actuated by the Bourdon tube of the gage.

#### Fire Automatically Shut Off

When the pressure reaches a pre-determined high point, the circuit is broken, thereby stopping the motor and shutting off the fire. With this automatic arrangement the fire comes on and goes off according to the steam pressure and without any attention from the operator, provided the ignition switch remains "on."

Two speeds are provided for the blower motor, the low speed giving a steaming range of 25-30 m.p.h. with the high speed providing a 40-50 m.p.h. steaming range. As mentioned previously, the control is by a conventional foot throttle and operates on saturated steam as the superheater is located between the throttle and engine.

The superheater is located around the top edge of the firebox and is formed of special alloy tubing which cannot burn out.

While differing from usual steam engine practice, the type of unit employed in the bus chassis is the same as used in many different fields where RotoBaker power units are employed. The engine of the chassis is placed just to

valve located inside the main valve and can be set by the operator to cut-off at 12½ per cent of the stroke at one point, 37 per cent of two points and 65 per cent at three points. The last point cut-off is used only for starting or slow speed hard pulling while reverse is accomplished by turning the valve by means of a lever and link connection to a foot pedal.

The bore and stroke of the engine is 4¼ by 3½ in., giving a piston displacement of 248 cu. in. At 1600 r.p.m. 85 to 90 hp. is obtained while at a road speed of 45 m.p.h. the engine turns over at 1200 r.p.m. With dynamometer tests conducted on the chassis it was found the engine develops 1800 ft. lb. torque at stalling load and that 1500 ft. lb. are required to slip the rear wheels.

The engine is a self-contained unit entirely enclosed with all moving parts running in oil. The valve and cylinders are oiled by a special high pressure lubricator driven off the speedometer drive gear on the rear of the main shaft. Ball and roller bearings are used extensively throughout the engine, the crankshaft being carried for and aft on ball bearings with smaller ball bearings used in the big end assemblies. The bearings in the valve are made of a special tungsten steel which will retain its hardness at the high temperatures encountered in this portion of the installation.

Exhausts from the engine pass into a semi-annular chamber on the top front side of the engine case directly into the oil separator. The latter is of the centrifugal type employing parts of a well known automotive type air cleaner and the combination insures an efficiency as an oil separator of over 95 per cent.

Water and oil are separated from the exhaust steam after it leaves the separator and the balance of the exhaust is used to drive a small turbo pump and fan unit located back of the radiator. The turbine exhausts directly into a simple jet condenser into which water from



the bottom of the radiator is pumped in quantities varying with the engine speed. The change from steam back to water takes place in the jet condenser and the water returns to the storage tank. The latter, of 30 gal. capacity, is located just forward of the fuel tank. Water is pumped from the tank through a large capacity strainer by means of the turbo pump at the top of the radiator. It next flows through the radiator, which has approximately 12 sq. ft. of frontal surface, out through a tube on the lower tank and into the jet condenser as mentioned.

#### Water Capacity 100 Gal.

This system allows the coldest water to be pumped into the condenser. The total water capacity of the entire system is 100 gal. which is sufficient for 2000 to 3000 bus miles, depending upon conditions. The electric generator is driven by means of an adjustable silent chain from the rear of the engine, just forward of the speedometer drive. The battery carried on the left of the chassis alongside of the driver's seat is a 32-volt Exide.

By means of a four-joint Spicer propellor shaft, the engine is permanently connected with the specially built Eaton make rear axle which is of the double reduction type. A center cross member of the frame provides the

bearing point for the universal joints connecting the two propellor shafts and also allows the mounting of the transmission brake. Both shafts are 3 in. in diameter, of the same length and interchangeable. The dropped "I" beam front axle, also of Eaton manufacture, is slung below the springs, the latter being attached directly to the frame at the rear and shackled to oversize Westinghouse shock absorbers at the front end. Rear springs are also semi-elliptics, being 60 in. long by 4 in. wide with the front springs 44 by 3 in. Steering is by a Ross cam and lever gear. Four wheel brakes of the self-energizing internal shoe Lockheed hydraulic type are employed, the drums on all wheels being 17 in. diameter by 5 in. For single-deck work dual tires are carried on the rear and singles on the front; for double-deck buses provision has been made for the use of larger tires. Wheels are Budd steel disks.

The frame side rails formed of one-piece stampings are 9 in. deep and they are separated by 9 channel cross members and two large diameter tubular members. At the dash the height of the frame top flange from the ground is 24 in. and the ground clearance is 9 in. at the front and 12½ in. at the rear. Treads are 68 at the front and 67½ in. at the rear. The total weight of the chassis is 7800 lb. and the body allowance 4000 lb.

## India Making Slow Progress With Highways

AN interesting detailed report of highway conditions in India is given in a special circular which has just been issued by the Transportation Division of the Bureau of Foreign and Domestic Commerce. In the entire country there are approximately 200,000 miles of road which can be used by motor vehicles in good weather, but in wet weather only a fraction of the total mileage can be used.

Burma has a road system of 18,647 miles in length. Of this amount there are 2127 miles of metalled roads. The standard width of the roads is 16 feet. Communication by road between the cities of this country is not practicable and roads are impassable during the monsoon period. The construction of highways has been more retarded in Burma than in any other province in India. The chief cause of this is the lack of funds and an insufficient personnel to supervise the work. A sum is set aside each year for the road system, but no special revenues are raised for the road system. The annual sum spent since 1920 has been \$2,159,000. The Public Works Department of the Provincial Government maintains approximately all of the roads. There is no market for machinery and prospects for the future are not very bright, on account of the cheap labor which is sufficient for the present program.

Of the 27,350 miles of roads in the Madras district, approximately 20,350 miles are considered passable at all times, the rest being affected by rain at certain times of the year. All of these roads are in a fairly good condition. There are at present, 200 miles under construction, with 100 miles being projected. The government allots the sum of 500 Rupees per mile each year for the upkeep of trunk lines within the Presidency and 1000 Rupees per mile each year in the case of such roads within various districts and municipal corporations limits. This includes minor repairs on bridges and culverts. All roads are maintained by the Public Works Department of the Government, District Boards and Municipalities. 755,402 Rupees were spent during the fiscal year ended March 31, 1925. Most of the road material is supplied by American firms at the present time, although the time allowed after

bids are called for is too short for American concerns. With more roads under construction there should be an increase in the sale of American materials.

There is only a fair amount of roads in the Bombay district, but much progress has been made during the recent years. A large number of the roads are metalled and can be used during the entire year. The road construction and administration of the native states is carried on by their rulers. The Public Works Department of the Bombay Presidency has charge of all of the Primary roads of the province. Very little machinery is used and all small purchases of machinery and supplies are made through the chief engineers of each province, while all large and expensive material must be applied for to the Chief Controller of Stores, Government of India, Simla. All purchases are made in England, if possible. Foreign firms must have their names registered and put on an approved list by making direct application to the Chief Controller of Stores, Indian Stores Department, Government of India, Simla.

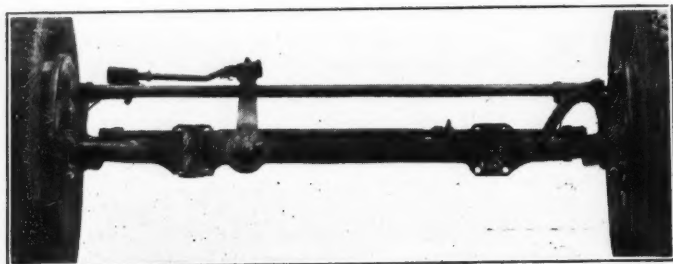
The number of miles of roads passable during the entire year in the Calcutta district is 19,322, while there are 83,658 miles passable in dry weather. There are 69½ miles now being projected. Because of the monsoon most of the roads are flooded during part of the year. The estimated cost each year for provincial roads is 640 Rupees, and 470 Rupees per mile for local roads. All of the highways are constructed and maintained by Government or local municipalities. When a road is to be constructed an estimate of the entire cost must be submitted to the Government. The Government then invites firms to submit their bids. The road building machinery is limited to a few steam rollers and scarifiers, all stone being crushed by hand. There is no growing market at present for road machinery.

In the Karachi district there are 31,811 miles of roads in addition to a large number of by-roads and paths maintained by local District Boards. Most of the main roads are passable throughout the year except when snow or rain is exceptionally heavy.

# Shock Absorber Will be Used as Steering Damper on New Marmons

Novel application of Hartford device is said to eliminate "shimmy" trouble at all car speeds.

By P. M. Heldt



*How the Hartford shock absorber is applied as a steering damper to prevent "shimmy"*

**I**N cooperation with B. G. Roos, chief engineer of the Nordyke & Marmon Co., Edward V. Hartford, Inc., Jersey City, N. J., has developed a device for preventing shimmy at all car speeds. This device, known as a steering damper, works on the same principle and is similar in construction to the well-known Hartford shock absorber, which has been used for controlling spring vibration for many years.

It is the contention of the Hartford concern that shimmy, wheel wobble, galloping and steering wheel throw, are simply different forms of periodic vibration of the front end, and that they can be controlled by the same means as other forms of periodic vibration, such as chassis vibration on the springs, and torsional vibration of the crankshaft—that is, by friction.

## Adopted by Marmon

The first application of the new damper was made to the Marmon car, and on that the device proved so successful that the Marmon Co. has decided to furnish it as standard equipment on its cars for 1927. The frictional element of the shimmy damper as fitted to Marmon cars (and experimentally to about a dozen other makes

by the respective manufacturers) corresponds in dimensions to the smallest size of Hartford shock absorber. This latter device, as is well known, consists of two sets of friction disks which are being pressed together by a spider type of spring under a pressure which can be closely adjusted by means of a nut. The same as the shock absorber, the steering damper has two arms, each rigidly connected with one set of friction disks, so that these disks must rotate with it.

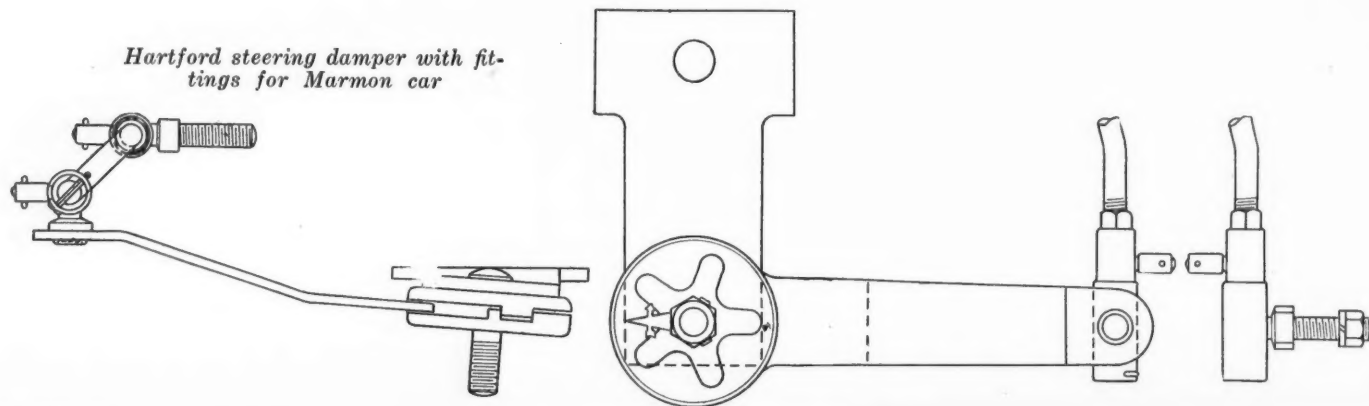
## No Special Clamps Needed

In the Marmon application, which is illustrated in the drawing reproduced herewith, one of these arms is clamped between the front spring and the spring pad on the front axle. No special clamping devices are required, the arm being stamped with a pad of the same widths as the spring and of a length somewhat greater than that of the spring pad on the front axle in the fore and aft direction. At the center of the pad there is a hole to accommodate the spring center bolt. The pad is merely placed between the spring and the axle and the tightening of the nuts on the spring clips then secures it rigidly in place.

In this particular case the friction disks are located directly over the front axle, and the other arm extends toward the rear. From its end a link with universal connections connects to the steering tie rod. In the Marmon car the connector at the end of the tie rod is ordinarily provided with a clamp bolt, and this clamp bolt has been replaced by a ball stud which takes one end of the link. In other designs a clamp is used which clamps directly to the tie rod.

From the fact that certain kinds of front end unsteadiness occur regularly at definite speeds, it seems logical to conclude that these forms of vibration are due to a periodic exciting force which happens to be in synchronism at these speeds with the natural period of the for-

*Hartford steering damper with fittings for Marmon car*





ward end of the chassis. Such periodic exciting forces usually are of very small magnitude, and they produce objectionable vibrations only because the effects of the individual impulses are cumulative. If the energy imparted to the vibrating parts is immediately absorbed by friction, the vibration will not assume objectionable proportions and will, in fact, be imperceptible.

In the Marmon application the friction element is so adjusted that it takes a force of about 20 lb., applied at the end of the rearwardly extending arm, to move the elements relative to each other. This has been found to eliminate all forms of front end vibration from a wheel throw which under certain conditions occurs at about 40 m.p.h., to the regular shimmy up to the highest speeds. The New York Service Station of the Marmon has fitted these dampers to the cars of a number of private owners and it is claimed the result has been entirely satisfactory in every case.

The objection might be made that the damper introduces additional friction in the steering mechanism and therefore makes steering harder. While it is true that the friction of the damper must be overcome in steering the car, it is claimed that the friction necessary to check shimmying is so moderate that it is impossible to notice any difference in the resistance to steering motions with the device on and off.

## Weymann to Establish Body Plant at Indianapolis

WORD has been received from Paris that Weymann fabric leather flexible bodies are to be built in America by the Weymann Motor Body Co., now under formation. The company will be located at the old National factory, at Indianapolis, and, it is declared, will be in full operation before the end of the year building bodies for the trade.

Uniting European and American capital, the new concern will doubtless have at its head the president of one of the leading American automobile companies, but technical control will remain with Charles T. Weymann, the inventor of this body.

F. E. Moscovics, president of Stutz, who has just returned from Europe, has been instrumental in deciding the new company to select Indianapolis as its manufacturing center and has completed arrangements whereby the company will take immediate possession of the National factory.

The entire capital of the Weymann Motor Body Company has been subscribed privately and no stock will be offered to the public.

Immediately after the Paris show, Mr. Weymann will sail for America in order to organize the Indianapolis plant and to produce body designs for the American market. It is understood that he will remain in the United States until after the New York and Chicago shows. Body building for the trade will constitute the entire activity of the Indianapolis concern. The intention appears to be to form a holding company which, as in the case of the parent company in France, will be empowered to grant manufacturing licenses.

His experience gained in the early flying movement suggested to Mr. Weymann the idea of building motor bodies of a light wood carcass covered with fabric leather, which merely acted as a covering for the passengers, for the entire load was carried directly on the chassis frame members. Much criticised at first because of its shape, the Weymann body is now built to any de-

sired line and by reason of its light weight and permanent silence has secured a very strong position on the French and other European markets. Practically every automobile manufacturer in France holds a Weymann license.

## Reo Adds New Sedan Bus

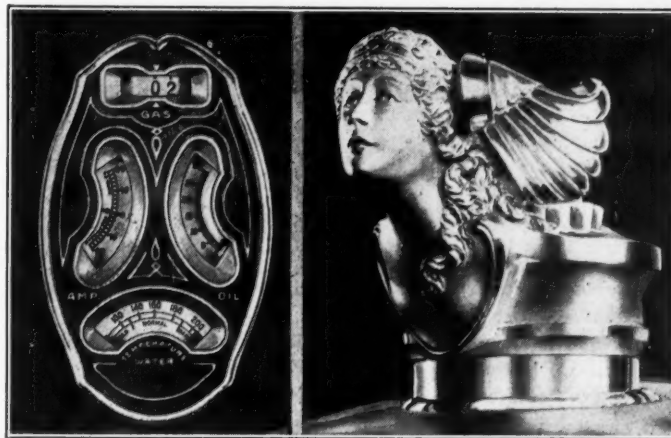
A NEW sedan bus has been added to its line of bus models by the Reo Motor Car Co. The standard seating arrangement is four cross seats in wicker, trimmed in Colonial grey leather, with head linings to match. Next to the driver's seat is a passenger chair, making the capacity 17 passengers plus driver. An optional seating arrangement is also offered which converts the bus into an "aisle job" of 15 passenger capacity. The price with either seating arrangement is the same—\$5100.

The new bus bodies are being equipped with the combination visor and sign box and will carry a luggage rack on the roof. In the 17 passenger model, which is the full cross seat job, there will be supplied a wicker hamper on the back of the next to the last row of seats which will hold small packages, two or three suitcases or even a traveling bag without cramping the leg room for the rear row.

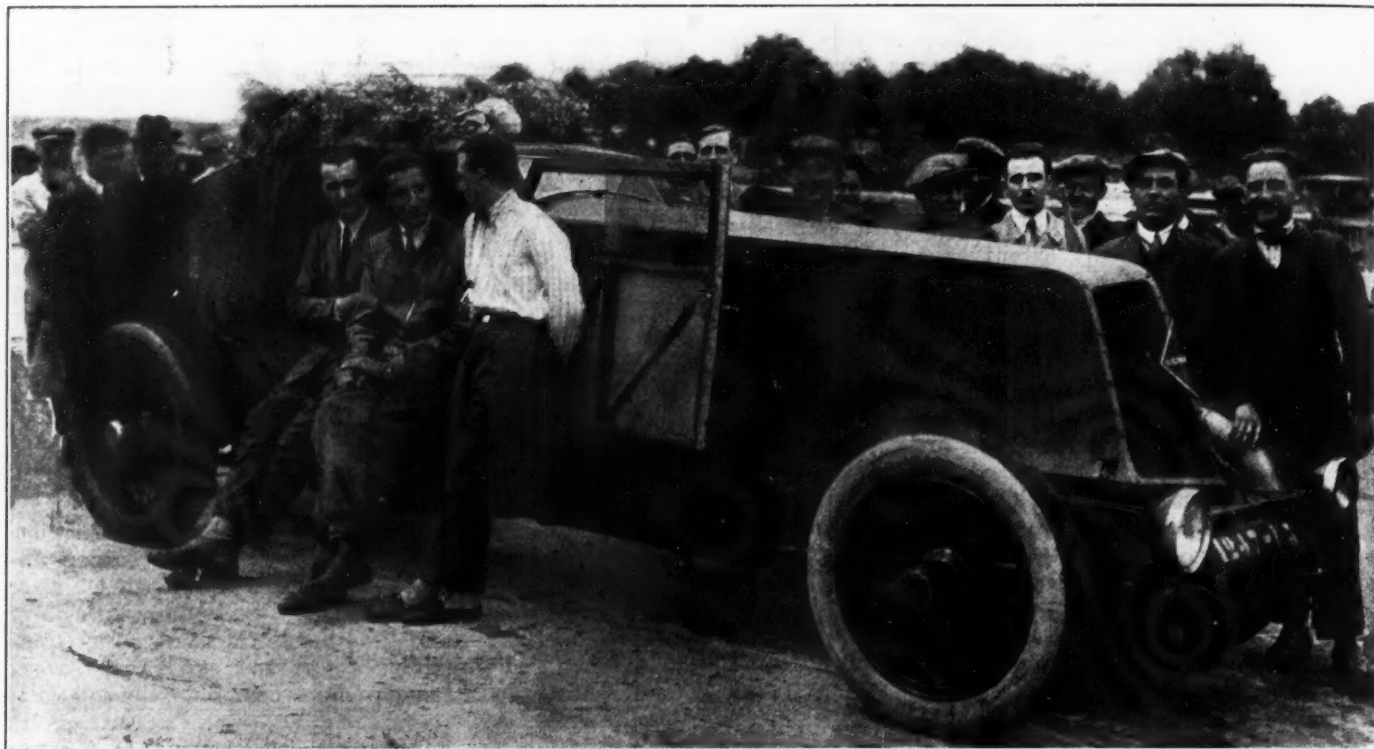
In the 17 passenger job all passengers face forward while in the 15 passenger model all passengers face forward with the exception of those who are seated over the wheel house, in which case the seats face the center.

Both models will be equipped with one door at the driver's elbow and three doors on the right side. When the model is seated for 17 passengers the entrance to the third row is obtained by folding the right hand seat forward at the second door; when used with a 15 passenger seating arrangement the first door will constitute the entrance and the second and third doors on the right hand side will be provided with a lock so that the operator can operate with the doors locked or unlocked as he wishes.

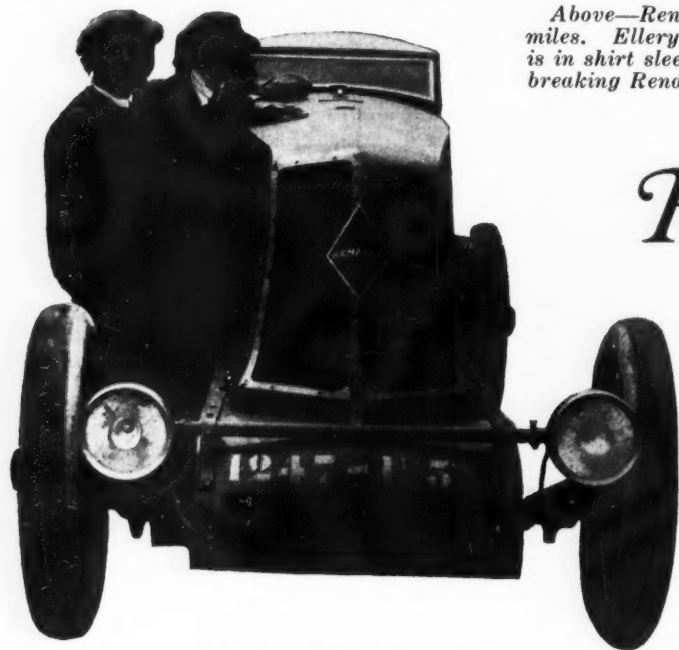
## Buick's New Radiator Emblem



DECORATIVE radiator emblems have become a vogue and are featured on many of the new car models introduced during the past year. The one shown above is used on the latest Buicks and gives an artistic touch which adds much to the beauty of the cars. Another attractive Buick feature is the instrument panel shown in the illustration at the left. The design, reminiscent of the Buick radiator lines, contains the gas, ammeter, oil and heat gauges



Above—Renault after breaking world's 24-hour record with 2589.4 miles. Ellery Garfield, American engineer responsible for record, is in shirt sleeves at right of group in car doorway. At left—Record breaking Renault. Oil radiator is in front and water radiator behind.



*By W. F. Bradley*

## Renault Sets New 24-Hour Speed Record

Travels 2589 miles at average of 107.89 m.p.h. American engineer gets credit for the achievement.

**E**LLERY GARFIELD, American engineer of Salem, Mass., is entitled to much of the credit for the world's 24-hour record established on a Renault automobile at an average of 107.89 miles an hour, running on Montlhery track, near Paris.

In charge of experimental work at the Renault factory, Garfield was instructed by Louis Renault to attempt to capture the world's 24-hour record, then held by Bentley at an average of 94.9 miles an hour, and for this purpose he had to make use of the firm's standard six-cylinder model of 110 by 160 mm. bore and stroke, giving a piston displacement of 556 cu. in.

The record was broken by the substantial margin of 318.8 miles, the Renault having covered 2589.4 miles, compared with 2270.6 miles for the Bentley, by reason of care-

ful and skilled preparation before and during the test.

Garfield worked on the principle that there are no unimportant details. The engine is a side valve job with thermo-syphon cooling. To cut down head resistance, a special radiator was mounted in an inclined position entirely behind the engine, all the air entering through the front of the hood and being discharged through a gap in the underpan.

A single-seater fabric leather sedan body weighing 134 lbs. and having the gasoline and oil tanks inside it, was fitted to the chassis. Total height of the body, with the car on 33x5 in. tires was 67 in.

Garfield is convinced that the closed body gave an advantage in speed compared with an open type, although he is unable to say to what extent, for comparative tests



were not made. The main advantage, however, from a record breaking standpoint, was that the men drove in greater comfort and could observe the engine more closely.

No important changes were made in the engine. The standard Renault has forged duralumin rods, aluminum pistons, a forced feed lubricating system with an oil radiator and a centrifugal oil purifier. A thermometer was fitted on the base chamber and there was a thermometer on both the inlet and the outlet water pipes.

In addition to the supply of oil in the engine base chamber, a reserve of 10 gallons was carried inside the body and could be made to flow by gravity to the engine while driving. The gasoline tank contained nearly 70 gallons, with gravity flow to the carburetors.

### Three Carburetors Used

It was found that best results were obtained with three carburetors—one for each pair of cylinders—with a very simple type of Y-shaped manifold. By means of horizontal and vertical divisions on the inner face of the left hand portion of the hood, the three carburetors were really inside a metal casing, whereas the top portion of the intake manifolds were in close proximity to, and were heated by, the six short exhaust pipes.

This double advantage of isolating the carburetors and at the same time heating the manifolds was obtained without any complication, for on the side of the hood being dropped everything was visible and to hand.

A final gear ratio of 2 to 1 was used, but the axle design was not changed. On the standard model the Renault has a forged duralumin housing with steel liners. Front wheel brakes were removed to avoid wheel shimmy. Renault hydraulic shock absorbers were fitted in front and Hartford's, with a special spherical mounting, on the rear.

In full running order the car scaled 5000 lbs. and with the gas tank three-quarters full the load was equally divided between the two axles.

Having a maximum speed of 120 miles an hour, it was realized that tires would be the limiting factor. The original plan was to change all four tires every two hours, when the change of drivers was made. Garfield, who took the first spell at the wheel but was assisted by Plessier and Guillon, realized that at an average of 106 to 108 miles an hour tires would be good for only one hour, and he immediately made arrangements for hourly stops. Seated in the center of the car, the drivers could see the front tires through the side windows and two mirrors gave them a view of the left and right hand rear tires.

The pit crew consisted of 14 men, 2 for each wheel, 3 for gasoline, one for oil and one inspector. The fastest change, which included four wheels, gas, oil, water and driver, occupied 52 seconds, but Garfield estimates that with slowing down and accelerating each stop cost him three minutes, or a total loss of 75 minutes. The only mechanical work done on the car during the 24 hours was the tightening of the rear shock absorbers.

Garfield, who not only prepared the car but took his

turn at the wheel with the two other drivers, has been connected with the Renault Co. for nearly ten years. For a few years he was on the engineering staff of the Wills Ste. Clair Co.

By this performance the Renault broke not only the 24-hour but nine other world's records, from six hours and 1000 miles upwards, and it covered the last lap at 118.74 miles an hour.

## Industrial Safety Course

IN response to the growing demand for trained leaders in industrial safety work, New York University, with the cooperation of the American Museum of Safety, next month will offer the first collegiate course in accident prevention, it is announced by Arthur Williams, president of the American Museum of Safety. Reports from State and Federal officials show increases in industrial accidents ranging from 5 to 50 per cent in recent years.

The course will be given under the direction of C. W. Price, vice-president of the Elliott Service Co., formerly general manager of the National Safety Council and director of safety of the International Harvester Co. Other instructors in the course will be Dr. E. George Payne, professor of educational sociology at New York University, formerly chairman of the educational section of the National Safety Council and author of numerous books on health and safety for children; W. Graham Cole, director of safety, Metropolitan Life Insurance Co., formerly manager of the Washington Safety Council and safety engineer of the Bethlehem Steel Co., and Louis Resnick, of the New York Edison Co., formerly editor of the National Safety News and director of publicity for the National Safety Council.

The course will be open to all graduates and undergraduate students in New York University and the employees in the industries which are members of the Museum of Safety and also to insurance safety inspectors, Governmental officials and employees, industrial safety committee men, and others who through previous training or present

association are professionally interested in accident prevention.

In addition to the course in industrial safety, there will also be a course in public safety. The scope of the industrial safety course is indicated by the following partial outline of the subject matter:

Present conditions in industry; what has been accomplished in accident prevention; the fundamental principles of industrial safety.

What the chief executives of a plant can do to promote safety.

Making the plant physically safe; mechanical guarding; good housekeeping; proper lighting.

The foreman as the keyman; his interest and leadership indispensable.

What a foreman must do to make his department safe.



Changing tires and filling gas tank on Renault during 24-hour record run. Changes were made every hour

# NEW DEVELOPMENTS—Automotive

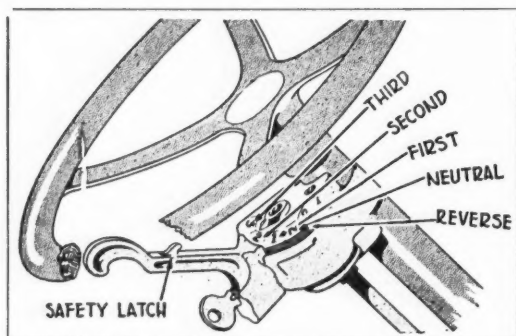
## Vacuum Operates Gear Shifter

*Replacement Unit Featured by Pre-selection of  
Speeds and Ease of Control*

THE vacuum of the inlet manifold is being used to shift the gears in the Craig automatic gear shifter manufactured by the Vacuum Gearshift Corp., Larchmont, N. Y. There are two cylinders, each containing a double-acting piston, and each end of each cylinder is connected to the manifold through a manually-operated selector valve. Each end of each cylinder engages one

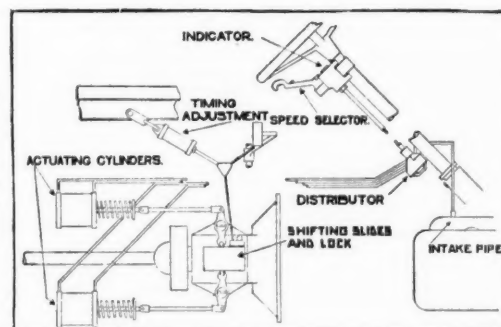
to the air, by the ports in the distributor. Upon release of the vacuum, the piston returns to its mid-position, due to the force of the spring.

Shifting slides and lock, or the actuating head, as it is sometimes called, are applied in place of the conventional transmission cover and they consist of two horizontal sliding forks supported by plates and actuated



*The speed selector is mounted on the steering column below the steering wheel*

*Diagrammatic layout of the Craig vacuum gear shift, showing relationship of various units*



particular gear. The gears cannot be shifted until a release cam is operated through the clutch pedal, and it is this feature which makes possible the preselection of speeds. A lock is incorporated in the design.

Operation of this vacuum-operated gear shifter is substantially the same as that of any other automatic gear shift mechanism. While the car is being driven on any particular speed, the driver may set the selector for any other speed he chooses. For instance, when driving on high he may set the selector for the intermediate speed, and then, when he approaches a hill, all he needs to do is to depress the clutch pedal and release it, when the gear automatically changes to second.

The entire range of speeds is obtained by moving the selector handle through a distance of about 3 in. and without removing the hand from the steering wheel. As a safety factor there is a trigger which must be depressed before the speed selector can be placed in the reverse position. The relationship of the various parts is clearly shown in the drawing reproduced herewith.

By means of a control rod, the speed selector is connected to the distributing valve which is placed under the floor boards and the vacuum is distributed by means of ports or valves. There is a pair of ports for each speed, one of each pair open to the atmosphere and the others are connected to the ends of the two actuating cylinders. These cylinders are of the proper dimensions to produce the necessary force even when the vacuum is at a minimum. Air tight double acting pistons are fitted to the cylinders and they are normally held in the central position by an externally mounted coil spring. When the vacuum is applied to either end of a cylinder, the opposite end automatically is opened

at the outer end by linkage from the piston rods. The other ends of the forks are connected to slide plates, which in turn are connected to the transmission shifter forks. The slide plates are so designed with a locking device, that they are at all times locked in the appropriate position and only one of the slide plates can be released at one time. A cam, operated by a cable connected through a timing adjustment device to the clutch pedal, releases this lock and permits the movement of the slide plates and the shifting of the gears. The point in the arc of travel of the clutch pedal at which the transmission gears are shifted can be adjusted by the timing adjustment. In other words the gears can be shifted just as the clutch pedal is depressed, at the end of the clutch pedal movement, or at any intermediate point.

The company is manufacturing this device as a replacement unit and it is to be merchandized through distributors. The actual work of installation requires less than two hours and is accomplished without alteration to the body or chassis. There is only one hole to be drilled in metal and no special tools are required. The Vacuum gear shifter is being produced in models for all popular cars having transmissions of the selective type. All parts excepting the transmission cover, slip rods, shifting forks and piston connecting links are interchangeable on all cars and the transmission cover has been designed so that there is in all models ample clearance between its highest point and the floor boards. A theft proof lock is incorporated in the design of speed selector. The speed selector, distributor, timing adjustment, cylinders and shifting slides are included in the retail price of \$75.

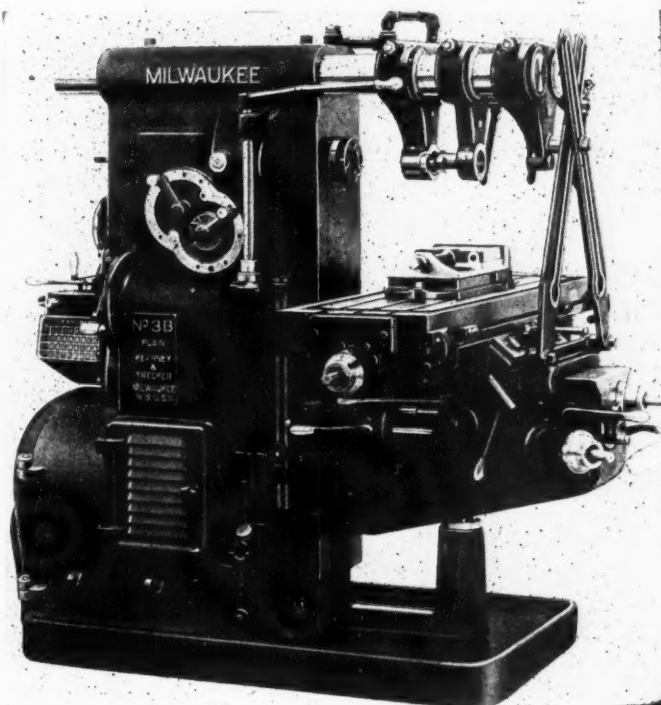


# Parts, Accessories and Production Tools

## No. 3B Milwaukee Miller

CONTINUING the policy which originated with the announcement of the No. 4 line of milling machines, Kearney and Trecker, of Milwaukee, are introducing a No. 3B milling machine which is designed primarily for individual electric motor drive. This policy follows investigation which has demonstrated that 90 per cent of the demand in the present market trend is for individual drive.

In all respects the new No. 3B line of machines follows the specifications of the No. 4 line which was described in *Automotive Industries* of June 3. Naturally the latest addition is somewhat smaller in every respect but the basic features of the two machines are identical. Outstanding features include the enclosed mounting of the electric motor which drives through a multiple disk clutch, hardened gears throughout the column and separate change gear box, and the liberal use of Timken roller bearings. The first three gears in the main drive train have ground teeth.



New Milwaukee No. 3B plain milling machine with individual electric motor, hardened gear train, Timken roller bearings and separate change gear box on back of column

Also power rapid traverse of the table in all three directions is a new feature for this size machine as is the use of fully enclosed and sealed but easily detachable coolant and lubricant pumps.

## Compression Loss Micrometer

THE White Compression Loss Micrometer, a recent development of the Leak Micrometer Corp., 1068 Mission St., San Francisco, is a device for ascertaining compression losses in the individual cylinders of an en-

gine. By means of this device it is said to be possible to measure the fit of piston rings to the lands of the piston and cylinder bore; to measure the fit of the valves in their seats; to locate warped or scored cylinders and, in general to make possible an accurate and complete diagnosis of the condition of engine compression.

All of these things are accomplished without dismantling the motor except by the removal of spark plugs and providing excess to a compressed air supply. The engine is turned over by hand until the piston in the cylinder to be tested is starting its compression stroke during which all valves are closed. The measuring device is then attached at the spark plug opening



White compression loss micrometer

ing and air pressure turned on. The air passes through the meter and by the regulation of a supply valve the pressure is kept at 75 lb. per sq. in. It then passes into the cylinder and if there is any leakage it is indicated by a drop in pressure which is recorded upon one of the dials of the instrument.

By covering the piston head with a heavy oil to seal it against air leakage the tightness of valve seating is determined. By making several tests with the piston in different positions in the cylinder the latter can be tested for scoring, warping and similar defects.

## Quick Change Chucks

THE "Wearever" quick change chuck, a recent development of Scully-Jones & Co., 2012 West 13th St., Chicago, is a device by means of which a series of operations such as drilling, tapping, reaming, counterboring, etc., can be finished from a single spindle while work is held in a fixed position.

The action of the tool is immediate—releasing the tool the moment when light pressure is made on the knurled collar—and engaging tools into the chuck is said to be just as rapid.

Simple construction is used throughout and all parts are made of heat treated steel to give great strength and long wear.



"Wearever" quick change chuck

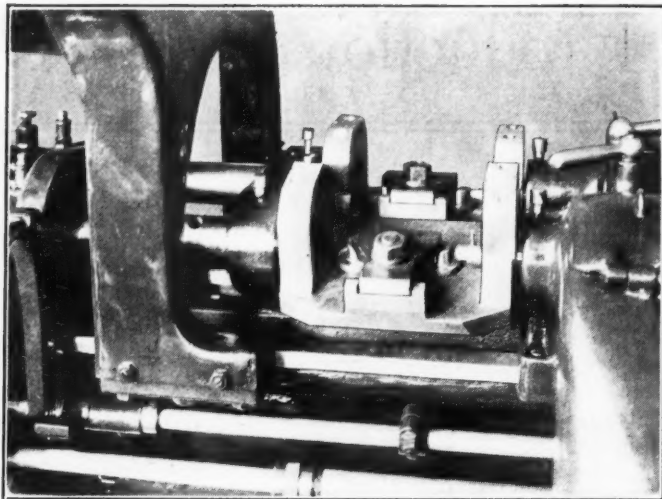


Fig. 3—Counter-weight fixture for drilling automobile bracket in deep hole drill

**A** NUMBER of automotive parts with long holes of comparatively small diameter in them lend themselves particularly to gun-barrel drilling. The characteristic feature of this method of drilling is that the drill is stationary and the work is revolved, which is the opposite of ordinary drilling operations.

As regards parts that are drilled in this way, mention should be made in the first place of camshafts, which are now often drilled out from end to end to serve as distributing pipes carrying oil to the camshaft bearings. Another part that is sometimes drilled out from end to end and which lends itself well to operations in the gun barrel or deep hole drill, is the connecting rod, which serves as an oil lead from the crankpin to the piston pin, or which may be designed with a hollow round section for the sake of lightness.

Fig. 1 herewith is a sketch of the set-up for drilling connecting rods in the No. 1 Pratt & Whitney gun barrel drilling machine. The connecting rod is held in a work driving chuck in

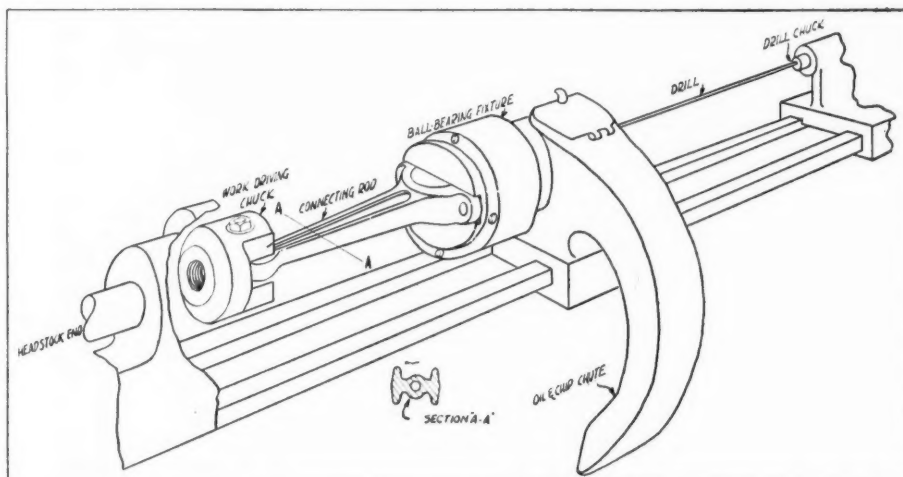


Fig. 1—Set-up for drilling connecting rods in Pratt & Whitney No. 1 deep hole drill

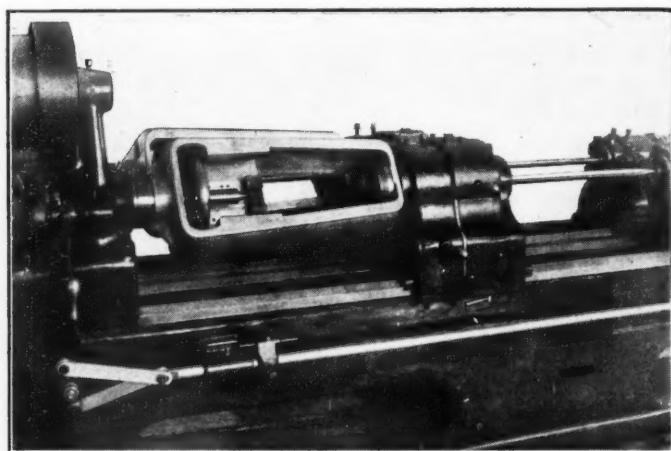


Fig. 2—Showing fixture for drilling connecting rods in No. 12 drill

## Gun Barrel Drilling in Automotive Production

Connecting rods, camshafts and other such parts lend themselves to method whereby work revolves around drill.

the headstock and in a ball bearing fixture in the tail stock. The drill used for this operation is a special single point drill, which has several advantages for this kind of work. In the first place, it does not tend to produce an oversize hole, as does the ordinary two-point drill when ground unsymmetrically, which is of importance particularly in cases where the wall thickness is

small, as in the case of connecting rods of hollow round sections for high speed engines.

The other advantage has to do with the method employed for clearing the drill of chips. It can be readily understood that in the case of holes of a depth equal to twenty or more diameters, the removal of the chips is a rather difficult problem. With the gun-barrel system of drilling this is accomplished by oil pressure.

The drill proper is welded or braced to a tube, and has a drill hole extending through it centrally, so that oil under pressure can be forced through it. Since the drill does not rotate in operation, it is an easy matter to connect it to the source of oil pressure by an oil-tight joint. Having only a single cutting point, the drill also has only a single flute or chip groove, and this chip groove is continued in the tube.

The oil admitted to the drill is under as much as 500 lb. per sq. in. pressure. It passes through the center of the drill, helps to keep cool the cutting edge and forces all chips into the chip groove, washing them out into an oil and chip-chute at the point where the drill enters the work.

The reason for rotating the work instead of the drill



is that this prevents running out of the drill. When the axis of the drill coincides with the axis of rotation of the work, the resistance encountered by the drill as it penetrates the work is completely in an axial direction, all radial forces or reactions neutralizing each other. However, if the axis of the drill deviates ever so slightly from the axis of rotation of the work, the radial forces become unbalanced and the predominant force in the radial plane tends to return the drill to the axis of rotation. The drill is therefore self-centering, as it were.

Many of the parts through which deep holes must be drilled are not balanced around the axis of the hole to be drilled and they call for special fixtures which either embody balancing masses or to which such masses can be applied. One of the illustrations herewith shows a counter-balance fixture used for deep-drilling of an automobile bracket. This fixture was designed and built by Pratt & Whitney.

### Fitchburg Semi-Automatic Valve Seat Grinding Machine

A VALVE seat grinder of comparatively simple design, great rigidity and requiring a minimum of manipulations has been brought out by the Fitchburg Grinding Machine Co., Fitchburg, Mass. It has a spring collet chuck which is loaded and unloaded by the operator. This is the only work the operator has to do, the grinding being entirely automatic.

Wheel feed is by a plate cam at the rear of the machine, which either may be allowed to run continually or can be made to stop automatically at the completion of the cycle, by throwing the lever at the front of the machine. The cam can be readily replaced by another one giving a different rate of feed, and the speed of revolution of the cam can be varied by change gears. This speed, of course, controls the time of the cycle, and, therefore, the production, and it is varied in accordance with the size of the work and the material ground.

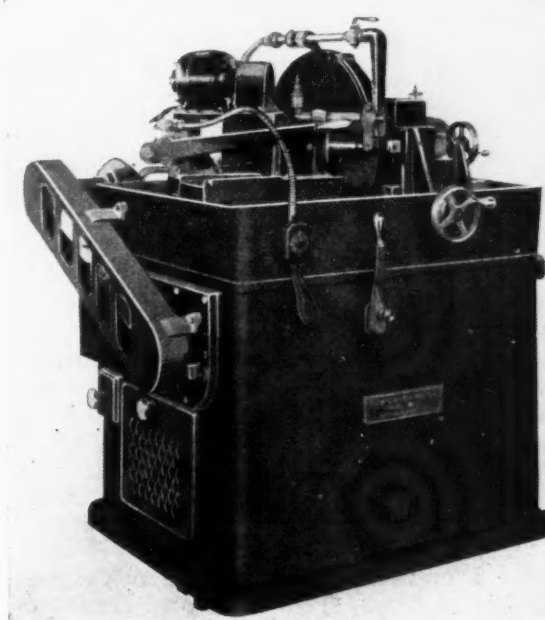
The work head has an adjustable reciprocating motion to traverse the valve across the face of the wheel. The head may be arranged for grinding 30 deg. to 60 deg. valves, inclusive. The wheel may be trued while the wheel slide is being operated by the cam. The truing device is so placed that the face of the wheel is kept in the same relative position to the cam feed so that no further adjustment is necessary after truing the wheel.

This machine is made in both belt-driven and motor-driven forms. In the motor-driven type the motor is enclosed within the base of the machine.

### Centrifugal Babbitting

A MACHINE for centrifugally babbitting connecting rods and other parts has been developed by Manufacturers Consulting Engineers, 487 S. Salina Street, Syracuse, N. Y. It comprises a cast iron floor stand with a hinged table which carries a 1 hp. electric motor on its under side and the bearings for the spindle on top. The

spindle is driven from the electric motor through a belt and a conical friction clutch. Connected with the clutch is a brake by means of which the spindle can be



*Semi-automatic valve seat grinding machine*

quickly brought to rest, and clutch and brake are operated by the same lever—the upper of the two levers at the front of the machine.

Clutch pulley and spindle are mounted on ball bearings, and the clutch cone is made of bronze. The holding fixture is opened and closed by the lower lever, and is held closed by springs while the babbitt is being poured and is cooling. The face plate is made of aluminum to reduce the weight of the rotating parts and, therefore, the strain on the clutch and brake due to frequent starting and stopping. The machine takes connecting rods up to 12½ in. in length.



*M. C. E. centrifugal babbitting machine*

# New 2-Ton Graham Truck Introduced in Two Wheelbases

Heavier chassis offered in 137 and 162 in. sizes. Prices are \$1445 and \$1515. Company builds test track.

**T**HE latest additions to the line of commercial vehicles built by Graham Brothers, truck division of Dodge Brothers, Inc., are two new types of two-ton capacity. Like their smaller predecessors, the new chassis will be supplied with a variety of bodies suited to practically every requirement.

Two lengths are made. The shorter, for 9-ft. bodies, has a wheelbase of 137 in. and the longer, for 12-ft. bodies, has a wheelbase of 162 in. Both chassis are equipped only with pneumatic tires, with either single or dual rears optional. Where single tires are used 32 x 6 in. size are fitted in front and 34 x 7 in. at the rear. For dual rear tire equipment disk wheels are standard with 34 x 5 in. tires both front and rear.

Pressed steel frame side rails for the shorter chassis are 7 in. deep and for the larger  $7\frac{1}{8}$  in. Due to the lower bending moments in the short frame, its thickness is  $\frac{3}{16}$  in. while that of longer frame is  $\frac{1}{4}$  in. Front springs on both chassis are 37 in. long, 2 in. wide and have 9 leaves, while the rear springs are 56 in. long, 3 in. wide and have 11 leaves.

Semi-floating rear axles incorporate spiral bevel gear final drive with a reduction of 6.286 to 1. Both service and hand brakes are of an internal self-aligning type operating in heavy pressed steel drums at the rear hubs. The brakes are connected so that the pedal operates all four brakes while the hand lever actuates two only. This feature, it is stated, insures long life and even wear of

the brake facings, making for more economical operation.

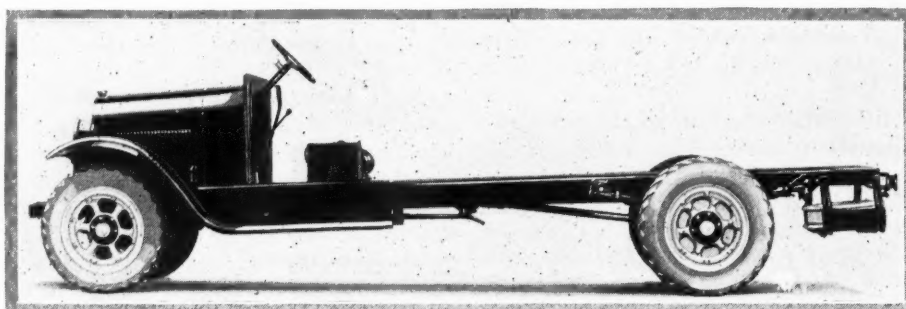
With either single or dual tire equipment the price of the shorter chassis is \$1445 and that of the longer one \$1515.

Coincident with the announcement of the new trucks, Graham Brothers have adopted a policy of keeping chassis under test at Detroit off the public highways and to this end have built a concrete test track surrounding a new building erected for the final inspection and final test department. The new building is single story and is 80 ft. wide and 320 ft. long, of monitor construction. The track has a concrete surface with straightways 20 ft.

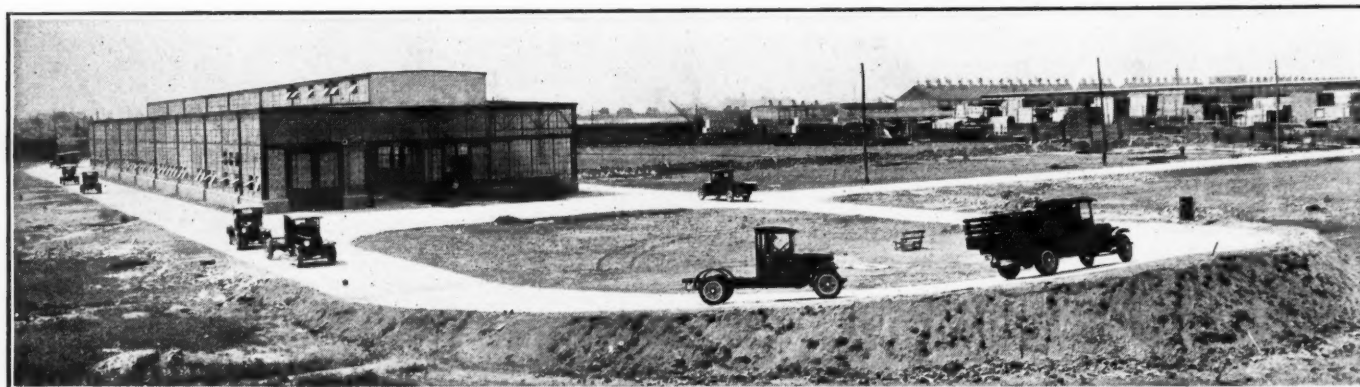
wide paralleling the long sides of the building. Width at the turns is somewhat greater and the outer edges of the turns are banked to a height of 5 ft. The total length of the track is somewhat over  $\frac{1}{4}$  mi. and due to the banked

turns trucks can be tested at speeds comparable to those of commercial operation.

**A**CCORDING to Sir Samuel Hoare the advent of aviation has enabled the British Government to reduce the cost of supervising and policing Iraq from £38,500,000 in 1920 to less than £4,000,000 in 1925. Prior to the handing over of the command to the Royal Air Force, a relatively large army was needed to police Iraq. The same amount of work is now being carried on efficiently with a relatively few number of planes and personnel.



Side view of new Graham two-ton truck chassis. This model is built in two wheelbases, one selling for \$1445 and the other for \$1515



New concrete test track built by Graham Brothers at Detroit



# EDITORIAL

## *Selling of Service Neglected*

**M**ECCHANICAL phases of service have had a lot of attention in the last few years. Service equipment manufacturers have constantly improved the tools with which maintenance operations can be performed efficiently, factories have had special men studying the mechanical phases of service and dealers have been urged to improve the quality of this part of their business.

But even high quality maintenance gets a chance to function only when people bring in their cars to be serviced. Selling service is not nearly so common or of such high quality as the mechanical parts of the work today. Most car owners first patronize a particular shop because it happens to be conveniently located, or because they happened to notice the existence of the shop in passing or for some other happenstance.

Only in a few cases do car owners begin to patronize a particular dealer's service station because the dealer has made a definite attempt to sell his service facilities to them. "Ask 'em to buy" hasn't invaded the service field to any material extent. Here seems to be another chance for factory suggestion and encouragement. Within the next year or so it is almost certain that some manufacturers will be engaged in a definite effort to help their dealers bring more profitable service work to the dealers' shops.

## *Highway Obstructions*

**W**E still have considerable work to do before we can hope to have a perfect highway system in this country. Even after millions have been spent in widening and surfacing a road for motor traffic it may fail to give complete satisfaction because of certain obstacles which are allowed to remain to interfere with steady travel, such as a grade crossing over a busy railway line, a drawbridge over a river or canal, or the continued use of ferries in the place of more modern bridges or subterranean tubes. Impediments of this character are found on many heavily traveled highways throughout the country and their cost to the public in loss of time and inconvenience, while impossible to calculate, must be enormous.

A good example of an obstacle of this kind is found on the Lincoln Highway where it crosses the Susquehanna River in Pennsylvania, between Columbia, Lancaster County, and Wrightsville, York County.

Leaving Columbia, west-bound, the motorist must cross a series of railroad tracks before reaching the bridge over the river. Several of these tracks are used for through freight and passenger trains and the others for switching purposes and it is not un-

usual to see motor traffic over this important highway held up at this particular point for a half-hour while the railroad completes a switching operation or gives the right of way to several long, slow freight trains. Motor traffic is completely subordinated to the business of the railroad. Of course cars coming from the opposite direction are held up too. The climax of such a long, tedious wait is reached when the motorist finds he must pay the railroad a fair-sized toll to continue his journey across the bridge, which is the railroad's private property. It would seem that some means could be found to eliminate such an annoying barrier on the nation's greatest cross-country motor route.

The day no doubt will come when most railway grade crossings, drawbridges, etc., are eliminated from the important highways. Safety and time economy will force it. New York has already taken steps to insure removal of grade crossings throughout the state and proposes to appropriate \$300,000,000 for the work.

## *Truck Development*

**I**T has often been cause for remark that, as compared with the amount of development work done on passenger cars, that on trucks is almost negligible. Although the directories list many more truck than passenger car manufacturers, the number of descriptions of new trucks published in the course of a year is much smaller than the number of passenger car descriptions. Most of the new truck models are vehicles assembled of stock parts and do not involve any great amount of engineering work.

Improvements in design are made to increase the life of cars, their reliability, their safety, their fuel economy, their convenience, their comfort and their ease of service. Practically all of these improvements would seem to be almost as important in commercial as in passenger vehicles, but evidently it is more difficult to commercialize such advantages in the truck field or to sell them to the purchaser at the proper price. Talk about latest improvements seems to make less of an impression with the motor truck buyer. Changes cost money, and economical manufacture is possible only if a product once tooled up for can be produced for many years in succession.

Another factor that may account for the apparently slow progress in truck design is that up to recently the market for trucks was more or less stagnant and did not warrant any considerable expenditure for development work. This condition has now changed, and if it was this that held back truck development, we may see more new models brought forward during the next year than have been brought out in any year since the slump of 1920.

# AUTOMOTIVE **NEWS SECTION** INDUSTRIES

Philadelphia, Pennsylvania

Thursday, August 19, 1926

## Demand for New Cars Hastens Factory Production Schedules

PHILADELPHIA, Aug. 19—Presentation of new models by many leading companies during the past month has brought about an oversold condition in several lines. Though a considerable portion of this is because manufacturers have not been able as yet to reach large production on their cars, it also is due in a large measure to the fact that the new cars have struck public fancy to fully as great an extent as in any former fall season, and indicates that a very favorable market may be looked for.

During the lull between old and new model production, dealers in many sections have been able to reduce used car stocks at least to an extent enabling them to do any trading necessary to moving new cars in good volume. This favorable retail condition promises to remain for at least several months and possibly may run through the year. Most of the cars accepted in trade from this time on will be closed cars which will find steady sales in the fall and winter.

With the popularity of new models, dealers will be in good position to control their trading allowances, and this will permit profitable resale prices, and also prices which will induce buying. Some little shifting in dealer ranks may be expected following the new car presentations accordingly as more advantageous selling opportunities are offered.

Unquestionably the general concert of manufacturers in offering new models will sustain large buying during the fall months. This may run more heavily to some manufacturers because of the greater appeal of their offerings but all should share largely in it accordingly as their dealer organizations are stimulated. Probably a better division of business will occur in the later year than in the first six months.

The exceptionally good business in the export field of the first six months bears every evidence of continuing through the year. The Canadian market has been especially good and promises to continue. The bus and truck market both at home and abroad is making larger gains than the passenger car. The latter part of the year also gives indication of remarkable strides in commercial aviation.

### Fisk Officers Changed

NEW YORK, Aug. 17—Complete supervision of the commercial activities of the Fisk Rubber Co. will be assumed henceforth by E. H. Broadwell, first vice-president, H. T. Dunn, president of the company, announced today. B. H. Pratt, vice-president, will continue to supervise the jobbing division of the Cudahy, Wis., plant while J. D. Anderson, vice-president, will make his headquarters at Chicopee Falls henceforth.

## PRT Proposes Buses in Downtown Area

PHILADELPHIA, Aug. 17—Plans submitted by T. E. Mitten, chairman of the executive committee of the Philadelphia Rapid Transit, for relief of traffic congestion in the downtown section of Philadelphia, include the substitution of bus lines for all present east and west surface trolley lines and the building of additional subways for trolley lines operating north and south.

He would have the city finance the building of parking garages in the downtown section to reclaim the street space now appropriated for parking private cars. He further would bar coal deliveries and operation of all heavy trucking in the downtown business district during business hours.

## Goodyear Earns \$4,014,873; Plans Refunding Action

AKRON, Aug. 18—When directors of the Goodyear Tire & Rubber Co. meet in the near future, definite action may be taken on the proposed payment of deferred dividends amounting to \$29.75 a share on the 7 per cent preferred stock, it was indicated in a statement today by President P. W. Litchfield.

A letter to stockholders discussing the dividend problem was sent out following an announcement that net sales during the first six months of the year were \$116,788,924, against \$94,271,000 in the same period of 1925, and net earnings, after all charges, but before dividends, were \$4,014,873 which compares with \$6,011,407 for the 1925 period.

Goodyear is not now in a position to liquidate back dividends in cash, Mr. Litchfield said. One possible adjustment under consideration is to issue to holders of preferred stock, a preferred stock with a value substantially equal to the amount of these dividends. This would be done either separate or in conjunction with refunding the company's outstanding senior securities.

What ever plan may be devised will be submitted with full details and ex-

planations to stockholders for their individual consideration. No plan will be adopted unless approved by large percentages of the company's stockholders.

Earnings this first half of the year were attained without the use of any part of special raw material reserve set aside Dec. 31, 1925, according to Mr. Litchfield. However, inventories on hand June 30, 1926, were written down to market by applying \$5,185,936 of such material reserve which has been correspondingly reduced to \$2,314,064.

## Canadian Courts Reject Relining Machine Patent

OTTAWA, Aug. 18—A court decision of more than ordinary interest was recently handed down by the Supreme Court of Canada in litigation over patents on brake relining machines.

Suit was brought by Wright & Corson and the Canadian Raybestos Co. against Brake Service, Ltd., and G. S. Davis Brake Co. charging infringement of a Canadian patent obtained in June, 1923, by Wright & Corson, the charge being based on the sale and use of the Davis relining machines in Canada.

This case was tried before the Exchequer Court of Canada, which on April 18, 1925, delivered an opinion holding the patent void. An appeal was taken from this decision to the Supreme Court of Canada with the result that a unanimous decision was handed down upholding the opinion of the lower court with regard to the validity of the Wright & Corson patent.

What in effect is part of the same litigation occurred in the form of a suit brought by the Canadian Raybestos Co. against the same defendants charging an infringement of the Canadian patent of Arthur C. McBride, of San Diego, Cal., which had previously been purchased by Wright & Corson. Trial was before the Exchequer Court and on June 22 a decision was handed down finding the McBride patent void.

## Bock Stock Votes Sale

TOLEDO, Aug. 18—Sale of the plant and the business of the Bock Bearing Co. of this city, to the Timken Roller Bearing Co. of Canton, was approved by the stockholders of the Toledo concern at the meeting held this week. The consideration was not announced. Large expansion of the Toledo plant and its business because of its location is forecast in the transaction.

## Chevrolet Trucks Reduced

DETROIT, Aug. 19—Reductions of \$55 and \$25 respectively have been made by the Chevrolet Motor Co. in the prices of its one-ton and half-ton chassis. The one-ton now lists at \$495 and the half-ton at \$375.



## Truck-Bus Control to be Major Issue

### Report of I. C. C. Hearings to Form Basis for Spirited Regulation Effort

WASHINGTON, Aug. 18—The regulation of motor bus and truck interstate traffic will be one of the major issues in the next Congress it is predicted here as a result of the investigation now being made by the Interstate Commerce Commission of motor transportation's relation to railroad transportation.

Several members of the Commission are conducting hearings at various places; these hearings to conclude here on Sept. 29. The Commission's report will then be formulated and be presented to Congress. The effort to regulate, by Federal statute, highway transportation, was begun in the last session of Congress but dropped after more or less half-hearted attempts, made in the face of opposition from many sources including the automotive industry and the American Automobile Association.

The opposition developed primarily because of the drastic provisions of the proposed law. One provision in particular caused widespread dissatisfaction, providing that bus or truck companies setting up an interstate service must secure from the Commission or from the State commission a certificate of public necessity showing that the community or the territory traversed was not at the time adequately served by existing facilities, either rail, water or highway.

When Congress failed to take action the Interstate Commerce Commission, on its own motion, initiated the investigation of the whole bus question in its relation to the railroads and the Commission's report, it is freely predicted here, will result in a spirited issue during the next session.

### Rail Traffic Sets New Mark

WASHINGTON, Aug. 18—As an indicator of business prosperity, the freight traffic on American railroads for the first six months of 1926 broke all existing records, the Bureau of Railway Economics announces here. Traffic amounted to 227,116,889,000 ton miles, exceeding by 1,632,421,000 the best previous record, made in the first six months of 1923.

### Detroit Company to Build Metal Dirigible for Navy

WASHINGTON, Aug. 19—Contract for the first metal-clad dirigible was let by the Navy Department this week to the Aircraft Development Corp., Detroit. The cost will be \$300,000 and the ship is to be delivered at Lakehurst, N. J., within 400 days. Dimensions will be approximately 150 ft. long with a maximum diameter of 53 ft. and a gas capacity for 200,000 cu. ft. of hydrogen. Using hydrogen the ship is expected to have a cruising radius of 2200 miles. Two engines developing 200 hp. each at 700

r.p.m. will give an estimated speed of 70 miles an hour.

The hull will be of duraluminum of eight-thousandths of an inch thickness with a coating to resist corrosion. There will be one gas compartment. If experiments are successful it is pointed out larger ships of the same type will have several gas compartments. The operating car will be integral with the keel and will provide for a crew of four and eight passengers.

Aircraft Development Corp. was the only bidder.

## Peerless Introduces Standard 8 Models

CLEVELAND, Aug. 18—The Peerless Motor Car Corp. of Cleveland for 1927 is offering the Peerless V type 90 degree eight-cylinder line with three additional body models.

The new bodies will be known as Standard models to distinguish them from the present custom-built line and are offered at prices several hundred dollars lower than for the present Peerless eight custom-built cars.

Prices are as follows:

5-Pass. Coupe .....	\$2795
5-Pass. Sedan .....	2995
7-Pass. Sedan .....	3095

Upholstery is of genuine mohair. Equipment includes bumpers and bumperettes, winter front, Watson stabilizers, and trunk on the coupe. Wheelbase of the five-passenger coupe and sedan is 126 in. and on the seven-passenger sedan, 133 in.

### July Rubber Imports Reach Average Price 41.04 Cents

WASHINGTON, Aug. 19—July imports of crude rubber reached the lowest average value this year according to preliminary customs returns from the posts of New York and Boston. The total imports during July of crude rubber and latex, as reported to the Department of Commerce, were 36,637 long tons valued at \$33,680,407, or an average value per pound of 41.04 cents.

The drop in the July average import value per pound to 41.04 cents from 61.85 cents in June is described by the Department fully as striking as the June increase over May when the average import value was 55.35 cents.

### Pierce-Arrow Adds Coupe

BUFFALO, Aug. 19—A two-passenger coupe, mounted on 130 in. series 80 chassis and priced at \$3100 is the latest offering of the Pierce-Arrow Motor Car Co. The top is finished in black landau leather with carriage bows at the side and the aluminum body, upholstered in wool, is available in a choice of six color combinations. Choice of a large luggage compartment or a rumble seat is offered. In the latter case, the rear window may be raised or lowered to provide communication among the passengers.

## Business in Brief

Written exclusively for AUTOMOTIVE INDUSTRIES by the Guaranty Trust Co., second largest bank in America.

NEW YORK, Aug. 19—Business developments last week represented, for the most part, continuations of trends noted in recent weeks. Industry and trade in general were in somewhat larger volume; stock prices moved upward, many issues reaching new high levels, while commodity prices declined slightly. The outstanding financial event of the week was the advance of the rediscount rate of the Federal Reserve Bank of New York from 3½ to 4 per cent.

As compared with July, 1925, sales of leading chain stores last month showed an increase of 19.1 per cent; mail order sales, 14.6 per cent, and department store sales, 5.4 per cent.

### ELECTRIC POWER USE

Industrial activity last month, calculated by the "Electrical World" on the basis of electric power consumption, was slightly lower than in June, but was 12 per cent higher than in July last year and 7.7 per cent above the average monthly rate for the last three years.

Mill consumption of lint cotton in July amounted to 460,918 bales, as against 518,504 bales in June and 483,926 bales in July, 1925. Consumption during the entire crop year totaled 6,450,987 bales, as compared with 6,193,417 bales a year earlier.

### STEEL TONNAGE

Unfilled orders on the books of the United States Steel Corp. on July 31 amounted to 3,602,522 tons, as against 3,478,642 tons on June 30 and 3,539,467 tons on July 31, 1925.

### CAR LOADINGS

Car loadings in the week ended July 31 numbered 1,102,590, as compared with 1,085,450 in the preceding week and 1,045,626 in the corresponding period last year.

### BANK DEBITS

Bank debits to individual accounts reported to the Federal Reserve Board for the week ended Aug. 11 were 9.2 per cent below the total for the preceding week but 13.4 per cent above that of a year ago.

### FISHER'S INDEX

Fisher's index of wholesale commodity prices stood at 147.3 last week, as against 147.7 a week earlier and 150.2 four weeks earlier.

### FEDERAL RESERVE STATEMENT

Bills and securities held by the Federal Reserve Banks declined \$700,000 during the week ended Aug. 11. Note circulation increased \$4,100,000, while deposits fell off \$1,400,000 and reserves \$2,000,000. The reserve ratio declined from 75.4 to 75.3 per cent.

During the same period, loans of reporting member banks increased \$35,000,000, while investments declined by the same amount. Borrowings from the Federal Reserve Banks increased \$11,000,000 and net demand deposits \$64,000,000.

## State Heads Favor Special Type Bulb

**Double Adjustment Declared  
Preferable—Will Seek Better  
Headlights at Factories**

BOSTON, Aug. 14—Results disclosed by a headlight demonstration arranged by the Eastern Conference of Motor Vehicle Administrators at its quarterly conference at Burlington, Vt., showed that 50 per cent of double filament bulbs bought for automobiles are so manufactured that an accurately focused light is difficult to obtain from them except with the addition of focusing adjustment which can raise or lower the beam. This was the important feature of the conference which was attended by 35 delegates representing 10 Eastern States.

There are on the market now single and double adjustments it was reported. Tests showed that with the double adjustment it is possible to focus the lights to better advantage. Its simplicity is such that the conference at its next meeting is expected to vote this type preferable to any other, but without disapproving other types.

A resolution was adopted authorizing the appointment of a committee to confer with the motor vehicle manufacturers with a view to inducing them to use headlights of a better quality in their standard equipment than some of those now in use. This action was taken to obtain better headlighting results and a greater freedom from the headlight glare menace.

## Higher Grade Cars Gain in Steel Center Sales

YOUNGSTOWN, Aug. 14—As of Aug. 1, there were 42,191 cars and trucks registered in Mahoning County, including 29,292 in the city of Youngstown. Of the total in the county, 5550 were trucks. In the first seven months this year 3975 automobiles and trucks were sold in Youngstown, as compared with 2965 for the corresponding period in 1925. Passenger car sales represent more than 90 per cent of the business. Cars selling under \$1000 represent 65 per cent of the total sales this year, while for the same period last year they represented 75 per cent.

## Start Night Bus Service

PORTLAND, ORE., Aug. 14—Inauguration of a new night motor bus service to Southern Oregon points and a through schedule to San Francisco over the Redwood highway was announced on Aug. 8 by R. W. Lemen, president and general manager of the Oregon stages.

The new bus to San Francisco will carry passengers for all Southern Oregon points and make direct connections at Grants Pass for Medford and Klamath Falls. The latest type de luxe buses with reclining sleeping chairs will be put on this run. Stop over privileges will be granted on this schedule.

## ALBATROSS MODEL OF FONCK PLANE

NEW YORK, Aug. 14—The Albatross, bird of good omen, has furnished the design for the plane in which Capt. Rene Fonck will make his attempted New York to Paris flight.

Igor Sigorsky, designer of the plane, made a special study of birds noted for their endurance, before modeling the Fonck craft. As result of this study he selected the Albatross, largest and strongest of sea birds.

Commenting on the natural selection of the eagle as a powerful bird, Mr. Sigorsky said it was a short distance flyer, staying always over the land. The Albatross, he said, flies thousands of miles on non-stop flights, battling strong winds. It has a much bulkier body than the eagle and measures 130 inches of wing span as against the eagle's 80.

## Decide Exhibit Types for Two National Shows

NEW YORK, Aug. 14—A light truck section will be included in the New York automobile show in Grand Central Palace Jan. 8 to 15, inclusive, the show committee of the National Automobile Chamber of Commerce has announced. The first and second floors of Grand Central Palace will be devoted to passenger cars, part of the third floor to trucks and the remainder to accessories. The fourth floor will contain the taxicab and shop equipment exhibits and also accessories.

There will be no trucks displayed at the Chicago show but special sections will be devoted to taxicab and shop equipment exhibits. The Chicago show will be held at the Coliseum from Jan. 29 to Feb. 5.

## Bus to Replace Trains

RALEIGH, N. C., Aug. 14—Pending a decision by the North Carolina Corporation Commission on a request of the Seaboard Railway for authority to discontinue local trains operated between Raleigh and Hamlet and Hamlet and Wilmington, the Chamber of Commerce here is attempting to arrange for establishment of a motor bus line to carry passengers and express between this city and Hamlet. A franchise from the corporation commission must be obtained before the proposed bus line may be placed in operation.

## Alberta Sales Exceed 1925

CALGARY, ALTA., Aug. 14—The province of Alberta shows a tremendous gain in motor car licenses for the first six months of this year as compared to last, in fact the figures are ahead of the whole of 1925 which numbered 53,092 as against the present figures standing at 53,280 with some towns not yet heard from.

## Car Unloading Depot Serves Golden Gate

**Southern Pacific Locates  
Special Terminal Near  
Heart of Automobile Row**

SAN FRANCISCO, Aug. 14—The Southern Pacific Railroad has just opened an \$80,000 station here devoted exclusively to the handling of shipments of automobiles moving via its lines into and out of San Francisco. The new facility, which has a capacity of 250 cars a day, is located at Leavenworth and North Point Streets, within four blocks of Van Ness Avenue, the automotive heart of the city.

Air, water, gasoline, and a completely equipped service station are available at the new depot, so that cars may be filled and driven away, or emptied and placed on board cars. Ramps run to car-side, and there are accommodations for the simultaneous loading or unloading of 28 fifty-foot cars. Five tracks serve the station.

The building is of steel frame and fire-proof construction. The platforms are 25 x 670 ft. and the servicing room is 75 x 100 ft. Ample lighting is provided for night handling of cars. All railroad transactions may be made at the station, which is provided with complete offices and office force. It is in reality a complete freight station devoted to the automotive industry only. No other freight is handled. Its operation is under direction of W. A. Westington, agent.

## Spokane Sees Good Market

SPOKANE, WASH., Aug. 14—New car sales in Spokane county during July were 334, two more than in July, 1925, according to compilations by the Washington Automotive Trade Association. Truck registrations were 33 new and 38 used and used cars registered numbered 376.

The wholesale business continues good in the eastern part of Washington and northern Idaho and that section of western Montana served out of this city by wholesalers. The crop outlook, forecast as bright earlier in the year, is proving itself up to expectations in most sections and in spite of heavy buying early in the year, with the money coming in for grain country districts are yielding good business for the automotive field.

## Graham Denies Hupp Deal

EVANSVILLE, IND., Aug. 14—Joseph B. Graham, former president of Graham Brothers, here this week from Detroit, denied a newspaper story to the effect that he and brothers were considering allying with Hupp Motor Car Corp. interests in establishing a motor truck building enterprise here.

Mr. Graham is here to visit the plant of the Hercules Corp., manufacturers of Graham, Ford and Chevrolet truck bodies, and Servel refrigerators, of which he is president.



## Absence of Harmony Marks I.C.C. Hearing

### Northwest Interests Voice Opposing Views on Bus-Truck Regulatory Measures

PORTLAND, ORE., Aug. 16—In the final days' discussions before the Interstate Commerce Commission here it was brought out that bus and truck operators, patrons, shippers and regulatory bodies do not know what they want in the way of legislation. Members of every group before the hearing had ideas different than those from any other member of the group. No one body was united in its wishes unless it was the highway departments of Oregon and Washington which build the roads used by the carriers, and which have little or no authority as to how the roads shall be used.

Witnesses pointed out that service by the various carriers rather than rates were the determining factor in which means of transportation was selected by the public. Stages pick up passengers where the railroads cannot stop, said witnesses. They also carry passengers to and from railroad stations as well as between railroad terminals, it was argued.

W. H. Somers, traffic manager of the Park Auto Service, Seattle and Tacoma, stated that the Portland-Seattle through fare was cut to \$1 less than railroad fare only when competition from other stage lines compelled it.

The Washington State Highway Commission asked permission to follow the commission hearing to San Francisco which was granted. There they will submit evidence showing the amount of money which the railroads of Washington have contributed toward the building of the highways. It is maintained by the railroads that they help build the roads over which the stages run in competition with them as passenger and freight carriers.

Relative merits of pneumatic and solid rubber tires on the highways was discussed heatedly by O. W. Horne of Portland freight terminal and E. A. Collier of Oregon state highway commission.

### Speed Whippet Production

TOLEDO, Aug. 14—Willys-Overland Co. reports an increase of 39 per cent. in June sales of the Overland six line over the same month last year. Gains of better than 40 per cent for the year to date on the Knight line are also reported. Production on the Whippet is being increased as rapidly as possible to meet retail orders which at the present time are reported doubling factory output.

### Jordan Adopts Fedco

CLEVELAND, Aug. 14—Jordan Motor Car Co. has adopted the Fedco number plate system for all its models, and cars now bearing this system of identification are in production.

### CONNECTICUT STOPS FAKE "STOP" SIGNS

HARTFORD, CONN., Aug. 14—Hundreds of illegal signs have been destroyed along the Connecticut highways by the State police. In such signs as "Stop, Refreshments 500 Feet Ahead," the word "stop" has been eliminated while other signs that have been too close to the road have been removed. Furthermore the State police are on the watch for any persons erecting signs along the highways.

Officers have been detailed to serve written notice on out-door advertisers and land-owners acquainting them with the law. Candy and tobacco signs are said to be the worst offenders. The campaign now under way will eliminate cheap advertising.

### Wisconsin Finance Firms Form State Association

MILWAUKEE, Aug. 14—Laurence M. Jeger, president of the Standard Securities Co., has been elected president of the newly organized Wisconsin Association of Finance Companies, consisting of virtually all concerns handling automotive paper in the state. W. M. Culp of Milwaukee was elected vice-president, and E. W. Genens, also of Milwaukee, secretary and treasurer. Directors include W. J. Knight, of Monroe; Dr. L. E. Spencer, of Wausau; C. H. Lohr, of Hartford, and W. A. Anderson, of Wisconsin Rapids. The association has incorporated under the laws of Wisconsin. Its objects are to encourage uniform business practices and advance the standard of the business. While most of the member concerns handle commercial paper of all kinds, the greater share of the business by far is in passenger car credit sales.

### Italian Output Up 3650

WASHINGTON, Aug. 19—A report to the Automotive Division of the Commerce Department from Turin, Italy, states that production of automobiles in the Piedmont district during 1925 numbered 35,650 as compared with 32,000 in 1924 and 16,000 in 1923. While imports into this district are practically negligible, with the exception of a few small German and French cars, exports of Italian makes greatly increased. The leading car markets for Italy, according to their importance, were Great Britain, Switzerland, Argentina and France.

### Zier Establishes Foundry

WATERTOWN, WIS., Aug. 14—Julius W. Zier, who for many years was foundry superintendent of the Brandt-Dent Co., Watertown, Wis., manufacturer of coin handling machines for banks, offices, etc., has established a foundry here for casting aluminum, brass and white metal. Later the production of finished products for the automotive and power farm machinery industry will be undertaken.

## Bankers Aid Saner Time-Sales Policy

### Hanch Reports Letters to Association Voicing Support of Activities

CHICAGO, Aug. 16—The campaign for sounder automobile financing being conducted by the National Association of Finance Companies is getting positive results, according to C. C. Hanch, general manager of the association. Mr. Hanch declares that letters received by him from leading bankers in many sections of the country plainly reveal a tendency in the direction of saner practices by finance companies and consequently improved credit policies on the part of automobile dealers.

Approval by bankers of the association's efforts to put automobile time sales on a safe and conservative basis is another gratifying note in these communications, says Mr. Hanch. Practically all of the letters implicitly or directly endorse the association's time-sales policy which places set restrictions upon down-payments and extensions.

The letters to which reference is made have been received by Mr. Hanch as the result of a national campaign from his office to feel out the sentiment of bankers with respect to the association's time-sales program and to learn through the bankers whether there has been local improvement in the matter of automobile financing. Mr. Hanch took up the investigation directly with heads of banks, themselves, with personal letters to each one. The exhaustive character of numbers of the replies and the promptness with which the answers came are suggestions of the interest aroused.

These letters indicate marked improvement in time-sales situations in certain localities where especially bad practices have been prevalent. Time extensions are being shortened and larger down-payment rules are being adhered to. It is found, too, that some banks have adopted policies which substantially carry into execution the crediting principles advocated by the association. "As this is an educational movement," said Mr. Hanch, "we can not expect great overnight success, but it is apparent our campaign is taking hold and that there has been an actual improvement in the general situation."

### Oppose Retreading Frauds

LOS ANGELES, Aug. 16—A determined campaign to drive the tire retread fraud out of business has been launched by the Los Angeles Automobile Trade Association in cooperation with tire wholesalers and factory branches. Every legitimate tire dealer has been asked to pledge with his signature that he will cut the beads or treads sufficient to destroy for retreading purposes all tires sold as junk. An excellent response to the appeal sounded by James E. Granger, secretary of the association, has already been received.

## G.M.C. Retail Sales 721,766 in 7 Months

Deliveries by Factories to Dealers Exceed Retail Sales by About 2000

DETROIT, Aug. 16—A total of 101,576 cars and trucks were sold at retail, during July, by General Motors distributors and dealers, bringing the total retail sales for the first seven months of 1926 up to 721,766 units.

That the corporation is closely following its policy laid down some months ago of not overloading dealers is indicated in the table of figures which show that while 721,766 cars were sold at retail, only 723,730 cars and trucks were sold by the various divisions to the dealers.

Sales by months follow:

DEALERS SALES TO USERS			
Jan. ....	53,698	25,593	33,574
Feb. ....	64,971	39,579	50,007
Mar. ....	106,051	70,594	57,205
Apr. ....	136,643	97,242	89,583
May ....	141,651	87,488	84,715
June ....	117,176	75,864	65,224
July ....	101,576	65,872	60,836
7 months .....	721,766	462,232	441,144

DIVISION SALES TO DEALERS			
Jan. ....	76,332	30,642	61,398
Feb. ....	91,313	49,146	78,668
Mar. ....	113,341	75,527	75,484
Apr. ....	122,742	85,583	58,600
May ....	120,979	77,223	45,965
June ....	111,380	71,088	32,984
July ....	87,643	57,358	40,563
7 months .....	723,730	446,567	393,662

## Canada 6 Months' Output Shows 33 Per Cent Gain

WASHINGTON, Aug. 19—Canada's total automobile production during the six months period ended June 30, 1926, amounted to 124,878 cars, as compared with 93,657 in the corresponding period of 1925, according to a report to the Department of Commerce from Trade Commissioner Lynn A. Meekins, at Ottawa.

Of the production during the first half of the current year 95,946 were passenger cars, as compared with 72,885 in the same period of the preceding year; 15,973 were trucks, as compared with 11,728 in the comparative period of last year; 12,860 were chassis, against 8966 in the former six months; and 99 were taxicabs and buses as compared with 68 taxicabs and buses in the first half of 1925.

## New Brunswick Plans Roads

WASHINGTON, Aug. 19—The Province of New Brunswick is about to construct 1300 miles of main trunk highways and about 100 miles of roads, Vice-Consul C. Johnson, Fredericton, N. B., advises the Automotive Division of the Department of Commerce. This province covers an area of 27,800 square miles.

## 200,000 VISITORS SEE STEEL PIER DISPLAY

DETROIT, Aug. 16—General Motors Corp., show room on the Steel Pier at Atlantic City, which was formally opened, July 1, attracted more than 200,000 visitors during the first month, an official of the corporation said today.

Prospects were obtained from almost every country in the world, besides practically every state in the Union, it was declared.

Officials of the corporation look upon it as one of the most advantageous steps the corporation has ever undertaken in sales promotion.

## Tractor Exports 32,109 in First Half of Year

WASHINGTON, Aug. 19—Tractors now constitute about one-third of the total agricultural implements exports, according to announcements made here by the Agricultural Implements Division, following a review of the rapid and consistent increases of tractor exports during the past five years.

During the first six months of the current year foreign shipments of wheel tractors amounted to 32,109, valued at \$17,511,000. This was more than \$7,000,000 greater than the exports in the same period of 1925, and was greater than the tractor exports in any calendar year except 1925 since 1920. The exports of wheel tractors in the first six months of 1925 were equal to only 39 per cent of the exports for the calendar year of 1925.

## Propose Highway to Join Washington and Cumberland

WASHINGTON, Aug. 18—One of the world's greatest boulevards is proposed between Washington and Cumberland, a distance of 185 miles. It would parallel the old Chesapeake and Ohio canal, thus forever preserving this historic waterway.

Arrangement for the acquisition of the right-of-way has already been made—it is to be donated by the C & O Canal Company, the actual building to be done by Federal funds. Championing the project is Col. C. Franklin Bell, District of Columbia Commissioner, and various patriotic societies.

The highway would closely link with the National Capital, Harper's Ferry and Shepherdstown, two of the most interesting towns through which the canal passes.

## Chevrolet to Show Plans for Million Year in '27

DETROIT, Aug. 17—The entire field force of Chevrolet Motor Co. will come together for a three-day convention on Aug. 23. The company's sales program for the coming year will be outlined by R. H. Grant, sales manager. It is expected to sell one million cars in 1927 as against an approximate 600,000 in 1926.

## Financial Notes

American Bosch Magneto Corp. reports for the six months ended June 30, 1926, a profit of \$243,752 after charges and depreciation but before Federal taxes, equivalent to \$1.17 a share earned on 207,399 no par shares stock. This compares with \$241,895 or \$1.75 a share on 138,266 shares for the first half of 1925. Profit for the June quarter of 1926 was \$104,844 before Federal taxes, equal to 50 cents a share, which compares with \$138,908, or 67 cents a share in the preceding quarter and \$165,263 or \$1.19 a share for the second quarter of the previous year.

F. B. Stearns & Co. will issue 100,000 shares of \$10 par 7 per cent. cumulative preferred convertible up to July 1, 1936, share for share, into common. Stockholders also voted to increase the number of no par common shares from 260,000 to 360,000 shares. The new issue of preferred will take care of indebtedness outstanding at the time the present financial management took charge, and will also provide additional capital.

Ajax Rubber Co., Inc., and subsidiaries for six months ended June 30, 1926 reports profits of \$324,279 after depreciation, interest and Federal taxes. From this amount there was appropriated \$250,000 for inventory reserve, leaving net profit of \$74,279, equivalent to 15 cents per share earned on 500,000 shares of no par stock. This compares with \$262,394 after depreciation, interest and Federal taxes in first half of 1925.

Mason Tire & Rubber Co. during the first six months had sales amounting to \$6,254,000 or at the rate of \$12,500,000 per annum. After providing for taxes, except Federal, all selling and administrative expenses, deducting \$217,000 to reduce inventories to less than cost and price declines there remained available for interest and reserves \$200,000. Current assets are \$3,600,000 and the current liabilities are \$1,900,000.

Murray Body Corp. earnings for six months ended June 30 were \$930,000 after all charges, including \$346,000 depreciation and all interest, and all receiver's expenses. This is equivalent to \$3.32 a share on the 279,829 no par shares which are to be outstanding under the proposed new reorganization plan. Time for receiving deposits from stockholders and creditors has been extended to Aug. 21.

Seiberling Rubber Co. net earnings for six months ended June 30 were \$182,335 after all charges. June net earnings were \$164,154. Sales for the first six months totaled \$7,355,568. June gross sales were \$1,670,850 against \$1,535,829 in May. Current assets June 30 were \$5,592,982 and liabilities, \$3,004,308.

Electric Auto-Lite Co. shows a net income of \$1,201,877 after expenses but before Federal taxes for the first half of 1926. For the June quarter the company reports a net income of \$530,658, as compared with \$671,219 in the preceding quarter.

Mack Trucks, Inc., as of March 31, 1926, shows total assets of \$71,535,967 against \$51,451,341 on March 31, 1925; surplus on March 31, last, amounted to \$39,896,600, comparing with \$26,960,179.

Norwalk Tire & Rubber Co. reports for nine months ended June 30, 1926, net loss of \$111,858 after expenses, depreciation, discounts, etc.



## Men of the Industry and What They Are Doing

### G.M. Export Corporation Makes Personnel Changes

Changes in personnel of General Motors Export Corp. now effective show E. W. Smith has been made assistant to J. D. Mooney, vice-president, succeeding W. B. Wachtler. M. K. Clark, formerly managing director for General Motors France has succeeded Mr. Smith in the sales department. N. C. Tuxbury formerly managing director of General Motors South African Ltd., will become regional director for the Caribbean zone. A. N. Lawrence, assistant managing director, has succeeded Mr. Tuxbury at the Port Elizabeth operation.

C. R. Osborn is returning to the home office to become service manager, succeeding K. K. Hoagg, who is to be assigned. Mr. Osborn will continue also general manager of the Overseas Motor Service Corp. R. Staudinger, assistant treasurer, is on a visit to the South American operations. W. T. Whalen, formerly managing director for General Motors Continental S/A is returning to New York, and is being succeeded by E. C. Riley, formerly managing director of General Motors Ltd. C. E. Proctor, formerly with Chevrolet Motor Co., has sailed for Sao Paulo, to become assistant manager of General Motors, Brazil.

W. D. Appel, who has been in charge of the Detroit office, is in England in connection with Vauxhall development. W. T. Crowe has succeeded Mr. Appel in Detroit. William Harvey, Jr., general supply manager, is enroute to Australia, where he will remain about three months. H. B. Phillips, manager of the Tokyo zone office, returned to New York, preparatory to making an inspection of European plants. He will return to Japan in October.

### Goodyear Fabric Mills to Have 150,000 Spindles

AKRON, Aug. 18—Officials of the Goodyear Tire & Rubber Co. announced today that construction work has been started on the company's \$2,000,000 cotton mill development at Cedartown, Ga. The present Clearwater cotton mill is being increased from 12,000 to a 30,000 spindle capacity. The new mill will be equivalent in capacity to a 60,000 spindle plant, because it is to operate day and night. About 900 operatives are to be employed.

Goodyear purchased the original 12,000 spindle mill from Charles Adamson last March, and with it a group of 55 houses for employees. One hundred new houses are now under construction by the company. According to present plans the plant will be ready for installation of machinery by December 1.

When the Cedartown additions are completed, Goodyear will be operating 150,000 spindles and producing more than 40,000,000 lb. of tire fabric a year, sufficient to take care of more than half of its requirements.

### FORBES DECORATES 25 YEAR EMPLOYEES

Two veterans of the Pierce-Arrow Motor Car Co. organization, with 25 years of service each to their credit, were decorated by President Myron E. Forbes. With these two men the company now has 31 men who have been with it for 25 years or more. A large percentage of them are factory executives, superintendents and foremen.

Some of these men have seen service since the days, 35 years ago, when the company's products included bird cages, bicycles, refrigerators and velocipedes. The formation of Pierce-Arrow Motor Car Co. came in 1901 when the first one-cylinder motorette was built.

### Chevrolet Promotes Klinger

H. J. Klinger has been appointed assistant general sales manager of the Chevrolet Motor Co. He will devote his efforts to the Great Lakes, Middle West and Pacific Coast regions and C. E. Dawson, who has acted as assistant general sales manager for the country at large will concentrate on the Flint, Atlantic Coast and South East regions. Before coming to Detroit to assist in supervision of general sales activities, Mr. Klinger was zone sales manager at St. Louis.

### H. E. Taylor on Trip.

H. E. Taylor, treasurer of the Hercules Corp., Evansville, Ind., with Mrs. Taylor and their two sons, Robert and Edward, is spending a month's vacation in the lake country about Minneapolis, Minn.

### Pinckney Joins Lepel

C. Cotesworthy Pinckney, formerly with Boyce & Veeder Co., Inc., has been appointed sales manager of the Lepel Ignition Co., New York.

### McCarty Joins Bartel

Roy N. McCarty, formerly with the Fox Advertising Agency of Detroit, has joined the Tom H. Bartel Co. as an executive on national advertising accounts.

### Approve Steel Merger

CLEVELAND, Aug. 17—Merger of the United Alloy Steel Corp., the Central Steel Co. and the Central Furnace Co. was approved by stockholders of United Alloy this week. It was also voted to increase the common stock authorized from 905,000 to 2,000,000 shares for acquisition of the other companies. The consolidated company will be known as the Central Alloy Steel Corp. There will be 15 directors. Officers of the new organization will be named in the near future. In the meanwhile operations will be continued uninterruptedly.

### Chrysler Sales Chiefs Named to Higher Posts

Promotions of three men in the sales division of the Chrysler Corp., were made today, by J. E. Fields, vice-president in charge of sales.

John McArdle, who has been associated with the Chrysler sales department for five years, becomes assistant to Mr. Fields. A year ago he was made an assistant sales director.

Earl B. Wilson takes charge of the company's Chicago, Cleveland, New Orleans, Omaha, Philadelphia and Portland district. He has held important executive positions with several manufacturing companies and shortly after joining Chrysler, 18 months ago, was made an assistant director of sales.

Forrest H. Akers will assist J. W. Frazer as director of the Dallas, Detroit, Minneapolis, New York and St. Louis district.

### Palmer Begins New Work

C. F. Palmer has assumed his new duties as manager of sales for Pittsburgh Steel Products Co. Mr. Palmer has been a well known sales figure in the steel industry for the past twenty years, previously serving with the Frank E. Palmer Supply Co. and the J. W. Faessler Mfg. Co. He has been connected with Pittsburgh Steel Products for the past 12 years.

### Schott Heads Carbon Sales

Harry S. Schott has been appointed general sales manager of the National Carbon Co., Inc., succeeding to that post from assistant general sales manager, which post he has occupied for the past two years. Mr. Schott has been connected with National Carbon and the Everready companies which it absorbed, since 1913, occupying many important sales positions in United States and Canadian territories.

### Brenon With MacManus

St. John Brenon has joined the staff of MacManus, Inc., and will specialize in planning and writing automotive and specialized industrial advertising. He has been associated almost constantly with advertising agencies since 1911 and at one time served as advertising manager of Duplex Engine Governor Co. of New York.

### W. M. Webster Back at Desk

William M. Webster, commissioner of the Automotive Equipment Association, who has been ill most of the time since the A. E. A. summer convention in Montreal in June, returned to his office today.

### Goller Locates in Detroit

G. O. Goller, body engineer and designer, has resigned his connection with the Luxor Cab Mfg. Corp. and has removed his residence to Detroit where he plans to concentrate his future activities.

## Chrysler Net Shows Gain to \$9,016,245

Operations and Sales Increase  
37 Per Cent—Exports 154  
Per Cent Higher

NEW YORK, Aug. 14—Net profits of the Chrysler Corp. for the first half of the year were \$9,016,245 after all charges, which compares with \$8,197,358 in the corresponding period last year. In the June quarter this year Chrysler earnings were \$4,904,156 after charges but before Federal taxes. This compares with \$4,696,132 for the June quarter 1925.

In a statement by W. P. Chrysler, president, accompanying the report, he said in part:

"Operations and sales for the first half of this year show an increase of 37 per cent as against the same period last year. Export business has made an unusually good showing, running about 154 per cent ahead of that for the first half of 1925, and aggregating 9 per cent of the total business done. The importance of export business as a stabilizing factor cannot be overestimated.

"The increase in the corporation's net permanent assets for the year ended June 30, of \$7,622,349, covered principally the additional facilities required for the production of the new Chrysler 60 and 50, just introduced, together with the body plant, acquired last fall from the American Motor Body Co.

"The economies effected by these improved and increased facilities have already been reflected in the lower prices on the corporation's product, which, in turn, have substantially broadened its market. Net current assets for the year showed an increase of \$1,361,130."

"There are now orders on hand for 30,000 of the new Chrysler 50's, Mr. Chrysler said, and forward orders on other lines are substantially in excess of last year. Dealer stocks have liquidated satisfactorily, he said.

## California "Tech" Makes Plans for Air Course

LOS ANGELES, Aug. 14—Establishment of a great aeronautical experimental school at the California Institute of Technology at Pasadena is now under way, following the award of an outright gift of \$300,000 from the Daniel Guggenheim Fund for the Promotion of Aeronautics.

The new aeronautical building at the Pasadena institution will contain a ten-foot high speed wind tunnel.

Dr. R. A. Millikan, chairman of the executive council of the California Institute of Technology, outlines the following plans of the institute:

1. Extension of its theoretical courses in aerodynamics and hydrodynamics, with the underlying mathematics and mechanics.

2. Initiation of a group of practical courses conducted by the institute's experimental staff in co-operation with the

engineering staff of the Douglas Airplane Co. of Santa Monica.

3. Initiation of a comprehensive research program on airplane and motor design.

4. Immediate perfection of the new stagger-decalage, tailless airplane recently developed at the institute, primarily by A. A. Merrill—a radical departure from standard aeronautical design.

6. The planning and manning of the new school so as to include the building and testing, not only of models for wind tunnel work, but also of full-size experimental gliders and power planes for free flight work.

## Labor Surplus Noted in Several Centers

WASHINGTON, Aug. 19—An employment surplus prevails in the Detroit industrial district according to the July statement issued here by the U. S. Department of Labor which sets forth that employment throughout the country generally is on a fairly satisfactory basis. There is a slight surplus of workers in automobile body plants in Grand Rapids, but this is reported only temporary. Automobile spring and bumper plants in Grand Rapids are operating overtime.

With several departments in the large automobile plants working overtime there is a shortage of workers in Flint. A large motor car corporation has taken over an automobile company and is to construct a sheet metal plant. A surplus of workers in the automobile industry exists in Lansing.

New York's industrial situation is reported good generally but there has been a falling off in production and employment in the automobile industry in the Buffalo district. There is still a surplus of workers in Ohio, while a surplus also is reported in some automobile accessory plants in Racine, Wisconsin.

## Goodyear of Canada Buys Cotton Fabric Factory

MONTREAL, Aug. 14—The Goodyear Tire & Rubber Co. of Canada, Ltd., has acquired a cotton mill at St. Hyacinthe, now operated as the Goodyear Cotton Co. of Canada, Ltd. This factory now employing 350 people is devoted entirely to the manufacture of fabric for Goodyear tires and is operating 22 hours a day. Thirty-two carloads of new machinery now being installed will give employment to 150 additional persons and at the same time will greatly increase production. All of the fabric for the Goodyear tires which are made in Canada is now made in the province of Quebec.

## P.-A. Lowers Coach Price

BUFFALO, Aug. 14—The price on the series 80 custom built two-door coach has been reduced by the Pierce-Arrow Motor Car Co. from \$3150 to \$2995, making it the first Pierce-Arrow car ever to sell under \$3000. Prices on other models continue unchanged.

## Sheet Steel Buying Sets August Record

Shipments to Industry Highest  
for Any Similar Period—  
Metals Inactive

NEW YORK, Aug. 19—With steel mills largely dependent upon from-day-to-day receipts of specifications, a certain amount of see-sawing in their weekly rate of operations is to be expected. Relatively heavy pressure on capacity one week may be followed the next by more or less idle units, but these fluctuations are useless as a key to the industry's trend.

Reports that the freight movement from important steel centers in the first half of August does not bear out the volume of activity with which the steel industry is generally credited have caused considerable astonishment among consumers. One railroad report said freight shipments in the Pittsburgh-Mahoning Valley district indicate that sheet mills were operating at 70 per cent of capacity and the industry as a whole at not over 75 per cent. Producers' reports of operations range all the way from 80 to 90 per cent.

Certain it is that full-finished automobile sheets have moved to motor car plants in heavier tonnages in the first half of August than in any corresponding period of previous summers. Cold-finished bar mills have made extraordinarily heavy shipments to automotive consumers, as evidenced by their activity just now in the market for hot-rolled bars. Similar conditions have characterized the strip-steel situation.

The railroads which have been out of the steel market for some time are now paving the way for placing their rail contracts under the most favorable conditions possible. These contracts, when placed, will swell unfilled tonnage figures, and thus impart strength to the market which will be reflected in every steel product, in spite of the fact that there is no connection whatever between rail mills and those that cater to the automotive industries.

**Pig Iron**—Advances of 50c to \$1 in the scrap market have been without effect on the virgin foundry iron market. Automotive foundries continue to buy in routine tonnages.

**Aluminum**—The recent addition to the domestic producer's list of grades of "metalurgical" ingots, ranging from 94 to 99 per cent in purity, has resulted in particular consumers emphatically specifying 99 per cent plus grade, this all the more so as in the market for imported metal the 99 per cent plus grade is obtainable at virtually the same price level as .98 to 99 per cent pure. Automotive demand for both virgin metal and remelted has improved.

**Copper**—The market is more quiet and slightly easier. The leading brass interest maintains prices unchanged on the basis of Aug. 3. Automotive demand is good.

**Tin**—Consumers buy gingerly, most transactions being of a speculative character.

**Lead**—Deliveries on existing contracts run heavy, but new commitments are rather light.

**Zinc**—Fairly steady.



## Tire Makers Oppose British Rubber View

See No Excess of Supply if  
Normal Production and  
Prices Continue

AKRON, Aug. 16—Leading tire manufacturers differ with the view of British experts that before the end of 1926 the world's rubber output will once more exceed consumption, after a four-year period of excess demand.

Officials of Akron tire companies assert the falling off in consumption of rubber in this country during the first six months of 1926 was the result of an abnormal price situation, and this will be more than made up for by increased activity in the industry during the last half year at lower prices.

The British statement is declared merely propaganda designed to justify their plan to restrict rubber production 20 per cent in the next quarter, and has no foundation in fact.

British interests point out that the chief reserve of free rubber constituted by London stocks has risen since the beginning of the year from 6000 to nearly 28000 tons. Shipments of plantation rubber in that period are estimated at 271,000 tons and total shipments of rubber at 291,000 tons. America consumed 15,000 tons of rubber less in this period than in the same 1925 period.

The price of rubber has fallen to one shilling 7½ pence per pound, and if the average price for the quarter is below 1 shilling nine pence, or about 42 cents, there will be a cut of 20 per cent in the British quota for the following quarter.

## British Financial Paper Urges Rubber Act Change

NEW YORK, Aug. 16—Removal of the Stevenson restrictions on the exportation of crude rubber from British fields in Malaya and Ceylon is strongly advocated by the *Economist*, British financial organ, according to dispatches printed here today.

The publication asserts that American manufacturers take three-fourths of the world's supplies and therefore are primarily responsible for prices. Since under the terms of the Stevenson scheme supplies are dependent upon prices, American manufacturers have a ready weapon for market manipulation it is pointed out.

### Report Ford Loan to Bulgaria

NEW YORK, Aug. 16—Reports that Ford Motor Co. has offered Bulgaria a loan of \$5,000,000 to be used for road construction were received here today. It was reported also that Ford had been granted a valuable concession to establish an automobile factory in Sofia. It was stated that in view of the loan having been obtained on terms regarded as favorable to Bulgaria, the issue probably would not be offered to the public.

## BUICK YEAR'S SALES 88 UNDER OUTPUT

FLINT, Aug. 16—Retail deliveries by Buick Motor Co. in the fiscal year ending July 31 totaled 240,424, an increase of 69,375 over any former fiscal year. Production in the same period totaled 240,512. With increased manufacturing facilities, a production of 1200 daily or in excess of 300,000 a year can be reached if necessary in the coming year the company declares.

## High Pressure Tires Show Lower Stocks

NEW YORK, Aug. 16—Shipments of high pressure inner tubes and cord casings continued to exceed production during June and inventories were cut, according to the bulletin issued today by the Rubber Association of America, Inc. Balloon inner tubes and casings did not fare as well. Production exceeded shipments and inventories mounted. Detailed figures follow:

High Pressure Inner Tubes				
	Inven- tory	Produc- tion	Ship- ments	
June 1926	10,337,404	2,162,154	3,180,465	
May, 1926	11,405,939	2,123,292	2,568,471	
June, 1925	5,910,609	3,566,099	5,173,477	
High Pressure Cord Casings				
June, 1926	4,503,647	1,789,752	2,136,057	
May, 1926	4,868,505	1,492,951	1,848,177	
June, 1925	2,870,827	1,894,704	2,610,409	
Balloon Inner Tubes				
June, 1926	4,844,588	2,465,646	1,993,353	
May, 1926	4,449,433	2,488,625	2,159,744	
Balloon Casings				
June, 1926	3,348,039	2,197,580	1,895,997	
May, 1926	3,100,464	2,084,687	1,823,411	

## Fisk President Finds Current Conditions Good

NEW YORK, Aug. 17—A favorable turn of the tide for the rubber companies is seen by Harry T. Dunn, president of the Fisk Rubber Co.

"Current conditions are satisfactory," he said, "following a slowing up in the early part of July after the tire price-cut, business has again picked up and August shows every indication of turning in an unusually large volume of sales. Buying, however, still continues on a hand-to-mouth basis and stocks are very low."

"The Fisk company is working close to capacity, turning out 25,000 casings a day and around 36,000 tubes. Earnings are running at a rate which compares favorably with the average earnings reported for last year and the company is in a very strong financial condition."

## Dealers to See New Marmon

INDIANAPOLIS, Aug. 17—Marmon Motor Car Co. will be ready to show its new small car privately to dealers in the latter part of September, according to factory statement. The car is said to be capable of sustained speed of 70 miles per hour.

## Philippine Leader Opposes Land Plan

Quezon Attitude Believed Fatal  
to Success of Legislation  
Favoring U. S.

WASHINGTON, Aug. 19—President Quezon, of the Philippine Senate has given American plans to surmount the British control of crude rubber almost a death blow by announcing he will fight any change in the Islands' land laws, according to word received here this week. The present laws, it is explained, limit the land holdings of any individual or corporation to 2500 acres which is too small for the purpose of large scale rubber culture.

Harvey Firestone, American tire manufacturer, has held high hopes of utilizing latent rubber land in the Philippine Islands and his son recently explained the situation in detail to President Coolidge.

The bills allowing large holdings, introduced to make possible American-owned plantations on the island of Mindanao, are said to be certain of failure with President Quezon opposed to them. It was estimated that 25,000,000 acres on the island were adaptable for rubber growing.

## Akron Tire Output Now 130,000 Daily

AKRON, Aug. 16—Due largely to the improvement in the rubber industry, employment conditions in Akron are better than at this time last year, and probably will continue to improve steadily for the balance of the year, according to the state-city free employment bureau.

Rubber and tire factories throughout Ohio have increased production during the past six or eight weeks, and virtually all of them are running at capacity. This condition is expected to continue indefinitely.

In the Akron district nearly 130,000 tires a day are being manufactured, which represents a gain of almost 30 per cent over production two months ago. A heavy demand from dealers is reported for automobile, bus and truck tires. Rapid growth of bus transportation is furnishing an ever widening market for the tire manufacturers.

## Whitman & Barnes Merge With Detroit Twist Drill

DETROIT, Aug. 17—The Detroit Twist Drill Co. and the Whitman & Barnes Mfg. Co. of Akron have been consolidated. A new corporation will be formed to take the holdings of both companies. W. H. Eager, president of Whitman & Barnes, is scheduled to be president of the new company, and Earl Kendig, also of Whitman & Barnes, is to be secretary and treasurer. M. B. Snow, president and general manager of the Detroit company, will be vice-president.

## U. S. Rubber Sales Increase \$7,583,859

NEW YORK, Aug. 16—A notice to stockholders by the United States Rubber Co. issued today reports sales for the six months ended June 30, 1926, amounting to \$100,113,986, which is an increase of \$7,583,859 as compared with the corresponding period last year.

Net income before interest on the funded indebtedness, but after all other charges, including depreciation in plants, amounted to \$8,156,842. Interest on the funded indebtedness amounted to \$3,241,174, leaving net income of \$4,915,668 after all charges.

Current assets as of June 30, 1926, amounted to \$169,964,889, consisting of cash \$10,289,782; accounts receivable less adequate reserve for doubtful accounts \$50,129,441; inventories of finished goods and raw materials \$109,543,666.

Plant liabilities amount to \$43,850,778, consisting of bank loans \$10,200,000 and current accounts payable, acceptance for importation of crude rubber and accrued liabilities \$33,650,778.

No part of the reserve of \$3,000,000 established at the close of 1925, to be applied against the cost of crude rubber to be received during 1926, has been used.

The announcement, signed by C. B. Seger, chairman, states that the results of operations of the plantations owned by the company have not been finally determined but the latest available reports indicate that they have been satisfactory.

## New York Registrations Show Seven Months Gain

NEW YORK, Aug. 16—Total sales of 35 makes of low and medium priced automobiles within the metropolitan area during July reached 12,587, as compared with 11,151 in the same month in 1925 and 11,376 in 1924, according to figures supplied by Sherlock & Arnold. This figure brings the total for the seven

months ended July 31 to 74,272, as against 57,872 for seven months of 1925 and 59,643 for 1924.

In the higher priced field total sales for July, 1926, were 1073, against 825 in July, 1925, and 609 in July, 1924.

Total for 57 makes in all price classes, for the first seven months this year, is 82,271 as against 64,329 for the corresponding period last year.

## Rubber Consumption Falls in Year's Second Quarter

NEW YORK, Aug. 14—Grand total of crude rubber on hand in the United States as of June 30 was 59,254 tons, an increase over the 58,191 ton total at the end of the March quarter. The grand total afloat on this date was 40,713 tons, making the total of crude rubber arrivals 89,674 tons as against 116,469 tons on March 31.

Tire and tube manufacture in the second quarter required 51,244 tons and 12,438 tons respectively, while 3381 tons were used for solid tires for motor vehicles and 1144 tons for tire sundries and repair parts. The total consumption for all tires and tire sundries for the quarter was 68,542. This compares with 73,081 in the first quarter this year.

## Carolina Taxes Exceed 1925

COLUMBIA, S. C., Aug. 14—Collections of automobile license taxes in the first seven months of this year by the South Carolina government totaled \$1,792,382, as compared with \$1,779,847 for the entire calendar year of 1925, according to official figures. Greenville county led the list of counties in collections for the seven-month period, with \$165,000 collected; Spartanburg county was second with \$144,802.

## Company Takes New Name

CHICAGO, Aug. 21—The Borgan Corp. is the new name of the company formerly known as Burke & Gantz, manufacturers of the Borgan "Super-Puller."

## Rubber Disk Wheel Built in Australia

WASHINGTON, Aug. 19—Australia has started the production of rubber disk wheels, doing away with the need for both tires and tubes, according to word just received here by the Automotive Division of the Department of Commerce. It is claimed by the Australian Rubber Company, Ltd., the dispatch continues, that the new wheel gives the resiliency of pneumatic tires without risking blow-outs or punctures.

Further claims made for the new wheels are that they can be profitably retailed at appreciably less than the cost of an ordinary 32 x 4 wheel, tire and tube and are guaranteed to give four times as much service. The wheels are constructed to be easily attached to the hub plate and consist of solid rubber on the outside and rubber cork on the inside.

## Germany and France Agree on New Automotive Duties

WASHINGTON, Aug. 19—A cable to the Automotive Division of the Department of Commerce from Acting Commercial Attache Miller at Berlin says the provisional commercial agreement recently signed by France and Germany provides for the following concessions in German import duties on automotive equipment:

Automotive engines, now dutiable at 200 marks per 100 kilos, receive a conventional rate of 160 marks; automotive frame radiators, clutches, gear sets and housings, cardans, differentials and housings, braking and steering gear, now dutiable at 225 marks per 100 kilos, receive a conventional rate of 160 marks; and carburetors, now dutiable according to the chief component metal, receive a conventional rate of 100 marks per 100 kilos.

Goods from the United States will receive the new rates under the most-favored-nation treaty.

## Developments of the Week in Leading Motor Stocks

NEW YORK, Aug. 19—The stock market was treated to a mixture of good and bad news during the past week and as the bad news predominated, stocks sold off rather sharply. The good news came in the form of an announcement of a 50 per cent stock dividend on the General Motors' common stock which increased the company's regular dividend by a similar amount. Although it was generally expected that something might be done at the meeting, few traders believed that the Corporation had planned to distribute so large a melon. Temporarily the distribution had a stimulating effect on the price of the stock, and after breaking sharply below 200 prior to the announcement, it rallied and held well above 200 for several days.

The bad news came in the form of an advance in the New York Federal Re-

serve Bank's rediscount rate which was interpreted in trading circles as a move on the part of leading banking interests to curb excessive speculation.

Motor stocks generally were heavy during the week. Practically all the six months' reports of earnings have now come to hand and although many companies have shown a gain in business, the earnings results with the exception of General Motors and one or two other companies, are not striking. That some of the companies are feeling the effects of keen competition is apparent. This situation has already made itself felt in the first six months' results and is expected to continue.

Hupp was in contrast to the general heaviness in the motors. The stock was actively sponsored by a strong pool and advanced to a new high price on the

move in anticipation of important developments expected to be announced early in September. The nature of these developments has not been disclosed but well-informed interests believe that a larger distribution to shareholders is planned.

Rubber stocks appeared to be well bought following the publication of six months' reports. This group has been under selling pressure for some weeks in anticipation that earnings results this year would show up poorly in comparison with last year. While the comparison is not favorable, many companies are making a better showing than had been expected.

The accessory group was comparatively quiet with special strength in several specialties, principally Moto Meter, Timken and Murray Body.—E.S.



## Railroads Own Many Wisconsin Bus Lines

Report to State Commission Shows 51 Interstate Routes Now in Operation

MILWAUKEE, Aug. 14—Besides showing that 415 motorbus lines are now operating in Wisconsin, a special report issued by the Railroad Commission of Wisconsin, in charge of the regulation of public utilities generally, reveals that the gross revenue per passenger per mile is 3.5 cents on the average, with a considerable variance above and below this figure. The deductions are made from official reports the law requires all bus operators to file with the commission to show schedules and rates, together with assurance that passengers are fully protected by insurance.

The special report shows that 326 interurban bus lines are operating in Wisconsin, there being 60 distinct operators, either individuals or corporations. Fifty-one lines plying between two cities or more travel interstate. Eighteen of this number, being operated by railroads or subsidiary corporations, come under the regulations of the Interstate Commerce Commission. There are 89 lines operating in city service, and 79 lines are owned and operated by electric railway systems. The largest urban operator is the Milwaukee Electric Railway & Light Co., with 55 lines in the city of Milwaukee.

Railroads have grasped the desirability of using motorbuses to a certain extent, the report says. The Northland Transportation Co., a subsidiary of the Great Northern Railway, operates nine bus lines extending into Wisconsin. The Chicago, Milwaukee & St. Paul operates one line, and the LaCrosse & South Eastern three lines. The Chicago, North Shore & Milwaukee electric maintains six distinct lines.

While the use of buses was confined to local runs in most Wisconsin cities only a few years ago, says the report, today they are carrying passengers on many long trips. Lines now run from Milwaukee as far north as Green Bay, 105 miles, and a line has recently been established between Chicago and Madison, Wis. Runs of 50 or 60 miles are common. Schedules show an average speed of 25 to 30 miles per hour required for running time. State laws prescribe a maximum speed of 30 miles on country highways and 15 m.p.h. in cities and villages.

### Rainier Tourists Increase

RAINIER NATIONAL PARK, Aug. 8—Visitors numbering 84,190 and automobiles to the number of 20,640 have passed through the various gates of Rainier National Park since the opening of the 1926 tourist season. This is an increase of 20 per cent in people and 21 per cent in cars over 1925, 69,707 visitors and 17,234 machines having entered the park in the same period last season.

## TO RUN FIRST CAR THROUGH N. Y. TUBE

NEW YORK, Aug. 14—The first automobile will be run through the Holland vehicular tunnel from New York to Jersey City within the next week, Ole Singstad, chief engineer directing the work, announced today. By March, 1927, he said, the tunnel will be open to the public. It will cost \$46,000,000 and will be capable of accommodating as many as 3800 cars an hour. The tunnel has both an east and west bound channel, each of which can accommodate 1900 cars an hour.

## Los Angeles Finds Need for More Parking Garages

LOS ANGELES—Aug. 16—Continued construction on a greater scale of large public storage garages is the only solution to the increasing seriousness of the downtown parking problem, is the gist of a report and analysis recently made by Dr. Miller McClintock, traffic expert, and consultant of the Los Angeles Traffic Commission.

Curb space is free, but this space will accommodate but one-fourth of the number of cars using the Los Angeles business district. Parking in garages now costs an average of 46 cents a car, and the use of parking lots average 26 cents a car. Most of the parking stations and garages use each space more than once a day.

"The parking of automobiles is imperative," says Dr. McClintock, "as a privately owned machine has no value as a transportation unit unless it can be stopped and left in close proximity to the owner's destination."

"Every responsible automobile owner provides a garage near his home, but too little thought has been given to the establishment of equally satisfactory terminal facilities at the other end of the run."

### Long Bus Line Shows Loss

HARRISBURG, PA., Aug. 16—Operation of motor buses between this city and Baltimore has been discontinued by the Red Star Line because of insufficient patronage, it has been learned. It was stated unofficially that the buses, which operated on a daily schedule, carried an average of only one and one-half passengers per trip. The total amount lost in the enterprise, due to the railroad competition, has been estimated at \$40,000. The equipment of the line here has been transferred to the Philadelphia-Washington route of the company, which has proved very profitable.

### Reo Bus Sales High

LANSING, Aug. 14—During July, the Reo Motor Car Co. enjoyed the greatest bus business in its history, and, also carried a large volume of unfilled orders over into August.

## Repeal of State Tax North Carolina Aim

Trade Association Determines Legislative Program and Prepares for I.C.C. Hearing

WRIGHTSVILLE BEACH, N. C., Aug. 16—Sweeping revision of the North Carolina laws providing for the regulation of motor traffic and the automotive trade, and the repeal of taxes imposed on manufacturers, distributors, dealers and salesmen of automobiles was demanded in the legislative program adopted by the North Carolina Automotive Trade Association, in semi-annual meeting here. The program will be submitted to the State Legislature when it meets early next year at Raleigh.

Among the matters which the association will work hard to force through the Legislature will be a proposal for repeal of the tax the State imposes on all manufacturers whose automobiles are sold in this State. The General Motors Corp. now is in litigation involving the recovery of approximately \$12,000, paid under protest to meet this tax in North Carolina.

The principal speakers heard by the approximately 200 members and guests of the association were N. C. Damon, of Washington, D. C., representing the National Automobile Chamber of Commerce, and General Albert Cox, of Raleigh, general counsel for the North Carolina association. Mr. Damon emphasized the importance to the automotive trade of the special hearing the Interstate Commerce Commission will hold Sept. 15 at Asheville, N. C., when all parties concerned will be heard on proposed regulation of interstate motor bus and motor truck transportation, and intrastate traffic when it overlaps with such interstate traffic.

### Plan Seven Bus Routes

SPRINGFIELD, ILL., Aug. 14—The Tri-State Bus Co., H. A. Lidel, Springfield, president, has filed petition for permit from the Illinois Commerce Commission to establish seven bus lines throughout the State, serving 100 towns and cities. The longest line, from East St. Louis to Chicago will pass through 55 cities and other proposed routes are: Springfield to Decatur and Danville, LaSalle to Ottawa and Joliet, Decatur to Champaign, Bloomington to Peoria, Decatur to Bloomington, Peoria via. Pekin to Springfield.

### Packard Buys Service Site

NEW YORK, Aug. 14—Contracts have been signed by the Packard Motor Car Co. of New York for the purchase of the entire block front on the west side of Eleventh Avenue between 54th and 55th Streets as a site for a seven-story service station which will cost about \$2,000,000. The property is said to have been bought for all cash and to have cost close to \$600,000.

## National Air Races to Draw 600 Planes

PHILADELPHIA, Aug. 14—More than 600 airplanes will be in Philadelphia the week of Sept. 4 to 11, to participate in the National Air Races and attendant exhibitions which will be held at that time according to an announcement by Major Howard F. Wehrle, head of the Aeronautical Division of the Sesqui-centennial. This without doubt will be the largest congregation of planes ever seen in the United States for such an event.

Among the features of national air race week will be a night circus, the first of its kind to be held in this country. During this demonstration large searchlights will play on the participating airplanes, while night warfare, etc., will also form a part of the program.

Practically all the leaders in aeronautics in this country and a great many representatives of foreign companies interested in the aeronautical field will be in Philadelphia during this week to view the latest developments in the aircraft line which will be on exhibition here at this time. The races will be preceded here by a convention of the Aeronautical division of the Society of Automotive Engineers on Sept. 2 and 3.

### Leipzig Draws U. S. Cars

NEW YORK, Aug. 14—More than a score of American automobile manufacturers will exhibit at the Leipzig trade fair which will be held this year from Aug. 29 to Sept. 4. Many American manufacturers in other lines are exhibiting and it is expected that an American building will result as a later development. The fair last year was attended by 180,000 buyers from more than 40 countries, according to registrations.

The fair has been held in Leipzig for the past 700 years.

### Coming Feature Issues of Chilton Class Journal Publications

Sept. 10—Operation & Maintenance. Annual Bus Issue

Sept. 15—Commercial Car Journal. Annual Bus Issue

Sept. 30—Automotive Industries—Annual Production Issue

### Machine Shop Division to Meet at Convention

CLEVELAND, Aug. 14—The machine shop practise division of the American Society of Mechanical Engineers will hold a session during the annual convention of the American Society for Steel Treating at the National Steel and Machine Tool Exposition at Chicago the week of Sept. 20. Due to the large exhibit of machine tools and the many members of the A. S. M. E. in attendance, a forum will be offered on this subject. The meeting will be held in the Drake hotel on Sept. 23 or 24.

The program for the meeting follows:  
Drop Forging Hammer Anvils—E. C. Clark, Chambersburg Engineering Co.

The Possibility of Standardizing Design Details in Plants Manufacturing Special Machinery—H. K. Keever, McDonald Machine Co.

Inspection Methods—E. D. Hall, Western Electric Co.

Foremanship Training—Hugo Diemer, La Salle Extension Institute.

### Move Indianapolis Office

MILWAUKEE, Aug. 15—The Indianapolis office of the Kearney & Trecker Corp. has been moved to larger quarters at 616/7 Continental Bank Building. Robert W. Ott continues in charge.

## Gas-Electric Coach Replaces Steam Line

ALTOONA, PA., Aug. 16—The East Broad Top railroad will shortly place in service a Brill-Westinghouse gas electric car on the line between Mount Union and Robertsdale to replace the present steam passenger service. The gas electric car is more of a power unit than a passenger car, it being the idea of the East Broad Top railroad to use one of its present passenger coaches as a trailer. This coach will be especially equipped with roller bearings and other devices to make it suitable, safe and comfortable for this service.

The gas electric car itself will accommodate fourteen passengers, the balance of the car being devoted to baggage, express and mail compartments. It is equipped with a Brill-Westinghouse 200 horse power gasoline engine, with electric control, and is capable of hauling three of the present passenger coaches from Mount Union to Saltillo, and one coach as a trailer up the mountain to Robertsdale.

The gasoline electric service will be strictly a passenger service and the schedule proposed will be considerably shorter than that now in effect.

### To Draw for A. E. A. Space

CHICAGO, Aug. 14—Contracts have been sent out for the annual show of the Automotive Equipment Association to be held Nov. 8 to 13 at the coliseum in Chicago. Drawings for space will be held Sept. 29 at the Congress hotel. This year, as last, the show will occupy the entire available space in the coliseum including the north and south halls. Attendance by jobbers other than members of the A. E. A. will be by invitation only.

# Calendar of Coming Events

## SHOWS

Boston, Mass. ....Sept. 27-Oct. 2  
Radio Exposition, Mechanics' Bldg.  
Brussels .....Dec.  
Ninth Argentine Automobile Show,  
Palermo Park.  
Chicago .....Sept. 20-24  
National Steel and Mechanical Tool  
Exposition, Municipal Pier, American  
Society for Steel Treating.  
Chicago .....Sept. 27-Oct. 2  
National Radio Exposition.  
Chicago .....Nov. 8-13  
Coliseum, Automotive Equipment As-  
sociation.  
Chicago .....Nov. 15-19  
Hotel Sherman, National Standard  
Parts Association.  
Chicago .....Jan. 10-15  
Coliseum, American Road Builders'  
Association.  
Chicago .....Jan. 29-Feb. 5  
National, Coliseum, National Auto-  
mobile Chamber of Commerce.  
Chicago .....Jan. 29-Feb. 5  
Annual Salon, Hotel Drake.  
Cleveland .....Oct. 4-8  
Public Auditorium and Annex, Amer-  
ican Electric Railway Association.  
London .....Oct. 4-9  
Olympia Motor Cycle.  
London .....Oct. 21-30  
Los Angeles .....Feb. 12-19  
Annual Salon, Hotel Biltmore.

Milan .....Sept. 1-20  
Exposition.  
Milan .....Sept. 6-13  
Fifth International Road Congress.  
New Haven .....Sept. 7-10  
Machine Tool Exhibition.  
New York .....Sept. 13-18  
Radio World's Fair, Madison Square  
Garden.  
New York .....Nov. 24-Dec. 4  
Annual Salon, Hotel Commodore.  
New York .....Jan. 8-15  
National, Grand Central Palace, Na-  
tional Automobile Chamber of Com-  
merce.  
Paris .....Oct. 7-17  
Auto Salon, Grand Palais.  
Paris .....Dec. 3-19  
International Aeronautic Exposition,  
Grand Palais.  
Prague .....Sept.  
San Francisco .....Aug. 21-28  
Pacific Radio Exposition, Exposition  
Auditorium.

## CONVENTIONS

American Electric Railway Association,  
Public Auditorium and Annex, Cleve-  
land .....Oct. 4-8  
American Road Builders' Association,  
Congress Hotel, Chicago .....Jan. 10-15  
American Society for Steel Treating,  
Municipal Pier, Chicago .....Sept. 20-24

Associated Manufacturers of Fabric  
Auto Equipment, Inc., La Salle  
Hotel, Chicago .....Nov. 13  
Automotive Electric Association, Del-  
aware Water Gap .....Sept. 13-16  
Automotive Equipment Association, Coli-  
seum, Chicago .....Nov. 8-13  
National Standard Parts Association,  
Hotel Sherman, Chicago .....Nov. 15-19  
National Tire Dealers Association, Inc.,  
Memphis, Tenn. ....Nov. 16-18

## S. A. E. MEETINGS

### National

Boston, Nov. 16-18, National Transportation  
and Service.  
Chicago, Sept. 21-23, Production Engineer-  
ing, Hotel Sherman.  
Philadelphia, Sept. 2-3, Aeronautical.

### RACES

Altoona .....Sept. 6  
Atlantic City .....Sept. 25  
Charlotte, N. C. ....Aug. 23  
Dallas, Texas .....Nov. 11  
Laurel, Md. ....Oct. 23  
Los Angeles .....Nov. 25  
Philadelphia .....Sept. 4-11  
National Air Races.  
Salem, N. H. ....Oct. 13